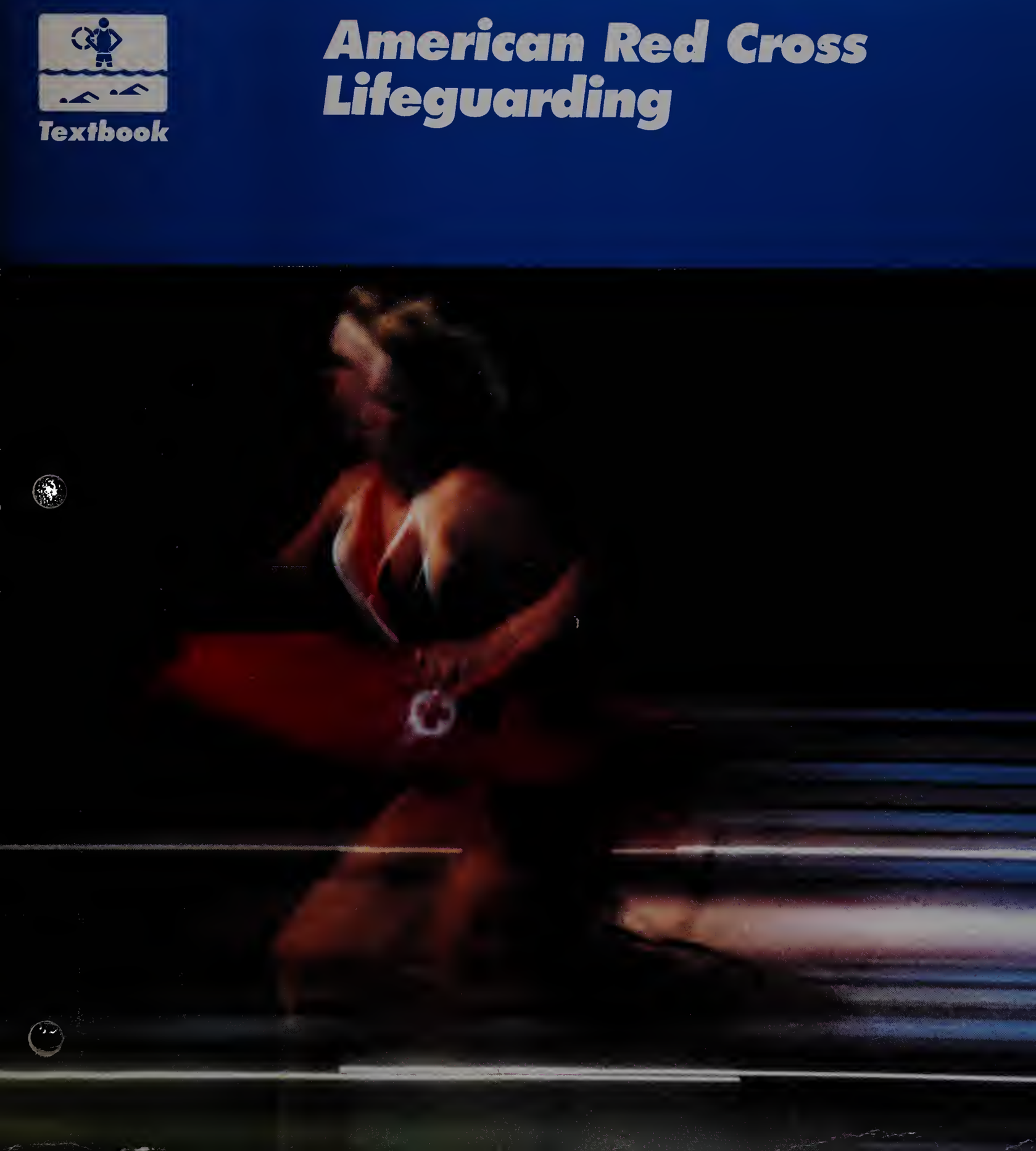
American Red Cross

American Red Cross Lifeguarding

Textbook



MISSION OF THE AMERICAN RED CROSS

The American Red Cross is a humanitarian organization, led by volunteers, that provides relief to victims of disasters and helps people prevent, prepare for, and respond to emergencies. It does this through services that are consistent with its congressional charter and the principles of the International Red Cross Movement.

ABOUT THE AMERICAN RED CROSS

To support the mission of the American Red Cross, nearly 1.2 million paid and volunteer staff serve in some 2,700 chapters and blood centers throughout the United States and its territories, and on military installations around the world. Supported by the resources of a national organization, they form the largest volunteer service and educational force in the nation. They help people prevent, prepare for, and cope with emergencies, whether those emergencies involve blood, disasters, tissue transplants, social services, or health and safety.

The American Red Cross provides consistent, reliable education and training in injury and illness prevention and control. American Red Cross instructors issue more than 7 million certificates each year in first aid, CPR, swimming, water safety, and health and HIV/AIDS education.

All of these essential services are made possible by the voluntary services, blood and tissue donations, and financial support of the American people.

PRINCIPLES OF THE INTERNATIONAL RED CROSS

- Humanity
- Impartiality
- Neutrality
- Independence
- Voluntary Service
- Unity
- Universality

Chpts. 1-4
Submerged victim
Simple assists

Textbook

American Red Cross Lifeguarding

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Michael C. Giles, aquatics director, University of Southern Mississippi, Hattiesburg, Mississippi.

Ralph L. Johnson, Ph.D., professor of health and physical education and director of aquatics, Indiana University of Pennsylvania, Indiana, Pennsylvania.

Dennis Munroe, director of aquatics, Department of Physical Education and Human Movement Studies, University of Oregon, Eugene, Oregon.

Louise Priest, executive director, Council for National Cooperation in Aquatics (CNCA), Indianapolis, Indiana.

Kathryn Scott, vice chairman, Department of Physical Education, University of California, Berkeley, Berkeley, California.

Michael T. Shellito, Department of Parks and Recreation, City of Roseville, Roseville, California.

Paul Kevin Smith, Department of Kinesiology and Health Education, University of Texas at Austin, Austin, Texas.

Kim Tyson, aquatics and safety lecturer, Department of Kinesiology and Health Education, University of Texas at Austin, Austin, Texas.

Royce Van Evera, director of community services, American Red Cross, Albany Area Chapter, Albany, New York.

Don VanRossen, Ph.D., College of Human Development and Performance, University of Oregon, Eugene, Oregon.

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Reverend Rodney P. Bourg, St. Bernard Parish Red Cross Chapter, Chalmette, Louisiana.

Paul M. Cerio, supervisor of aquatics, University of Nebraska at Omaha, Omaha, Nebraska.

Darwin DeLappa, director of water safety, New York Parks, Recreation and Historic Preservation, Albany, New York.

Michael C. Giles, aquatics director, University of Southern Mississippi, Hattiesburg, Mississippi.

Ralph L. Johnson, director of aquatics, Indiana University of Pennsylvania, Indiana, Pennsylvania.

John M. Malatak, officer, Health and Safety, American Red Cross national headquarters, Washington, D.C.

Jane W. McCharen, Metro Public Schools, Nashville, Tennessee.

Mike Miller, director of aquatics, University of Missouri, Kansas City, Missouri.

Michael T. Shellito, Department of Parks and Recreation, City of Roseville, Roseville, California.

Marilyn Strom, aquatics director, University of Massachusetts-Boston, Boston, Massachusetts.

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James Gorman, director of safety services, American Red Cross, Greater Cleveland Chapter, Cleveland, Ohio.

Ralph L. Johnson, associate professor, director of aquatics, Indiana University of Pennsylvania, Indiana, Pennsylvania.

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John M. Malatak, director of safety services, American Red Cross, Nashville Area Chapter, Nashville, Tennessee.

Joseph Pecoraro, supervisor of beaches and pools, Chicago Parks District, Chicago, Illinois.

Ed Patterson, aquatics facilities director, County of Los Angeles, Parks and Recreation Department, Los Angeles, California.

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1 History and Philosophy of Lifeguard Training

3 What Is a Lifeguard?

4 Current American Red Cross Training

When Commodore Wilbert E. Longfellow started the Life Saving Service of the American Red Cross in 1914, his primary objective was to organize local volunteers into lifesaving corps to supervise local bathing areas. By training outstanding lifesavers from each corps to teach swimming, the Commodore continued his program of "waterproofing America." Through countless talks and public demonstrations, he made Americans aware of the need for water safety education. The immediate results were an increase in the popularity of aquatic activities and a significant decline in the national drowning rate.

Since 1914, the Red Cross has continued to expand on the Commodore's innovations by publishing textbooks, films, videos, and instructor's manuals on swimming, lifesaving, lifeguarding, and water safety. The Red Cross revises these publications periodically to introduce new skills and knowledge, and to expand materials and programs.

Historically, the major requirement for a person to be a lifeguard was current certification in American Red Cross lifesaving. In the past, lifesaving courses and other water safety courses emphasized personal safety: how to prevent accidents and **how to protect yourself** in emergencies. The course taught people how to rescue others, but the emphasis was on extending an object such as a towel or pole or on throwing a flotation device to the distressed individual. If neither of these methods was successful, the rescuer was taught to use a free-floating support or a boat to reach the victim. The rescuer's main concern was personal safety. The rescuer was taught to enter the water to make a swimming rescue **only as a last resort.** The American Red Cross never intended for lifesaving training to be lifeguard training. Current Red Cross water safety courses—Basic Water Safety and Emergency Water Safety—also emphasize personal safety. **These courses are not designed to provide lifeguard training.**

Today, however, organizations such as the American Red Cross, the Boy Scouts of America, the Young Men's Christian Association (YMCA), the Council for National Cooperation in Aquatics (CNCA), the United States Lifesaving Association (USLA), and the Aquatic Council of the American Alliance for Health, Physical Education, Recreation, and Dance (AAHPERD) are striving to educate the public and the owners, operators, and managers of aquatic facilities about the difference between lifesaving and lifeguarding.

What Is a Lifeguard?

Depending on whom you ask, a lifeguard is—

- A supervisor who sits in a stand watching people in and around the water in order to help anyone in trouble.
- A disciplinarian who enforces rules and regulations.
- A public relations person who promotes the facility.
- A maintenance person who helps to keep a facility clean and safe.
- A teacher who gives swimming lessons.
- A babysitter who operates a safe place where parents can drop the kids off for the day.
- A person trained in first aid.
- A swim coach who trains the team.

A lifeguard may perform some or all of these roles. The extent of the job depends on the governing body of an aquatic facility, the facility manager, the number of people who use it, and the number of lifeguards on duty. Lifeguarding is no longer just a summer job—for some, it is a profession.

Lifeguard candidates are taught that their first concern is the safety of others. Paid and volunteer lifeguards at private and public aquatic facilities must understand that they are responsible for providing the safest possible conditions for the facility users.

During the past 25 years, aquatics has become one of America's most popular recreational activities. The number of residential, private, and public pools; health spas; state parks; water parks; campgrounds with swimming facilities; and public beaches has increased steadily. More people are engaging in activities in, on, under, and around the water. Properly trained people are needed to supervise and guard these activities.

Lifeguards must have the ability to recognize a hazardous situation. They must be able to supervise swimmers, minimize dangers, educate facility users about safety, enforce rules and regulations, give assistance, prepare records and reports, and perform whatever additional administrative duties are required. The position of lifeguard today has become one of greater responsibility than in the past.

In 1983, the American Red Cross released the original version of the American Red Cross Lifeguard Training course. The course was later revised and the original textbook updated with a supplement in 1988. This reorganized text combines the original *Lifeguard Training* textbook (Stock No. 321119) and the *Lifeguard Training Supplement* (Stock No. 329448). All content reflects the most current rescue techniques. Because of their growing popularity, there is a new chapter on water parks.

This text is intended as a guide for lifeguards, for lifeguard training instructors, and for managers of aquatic facilities who want to establish a system for selecting, training, and using lifeguards.

Current American Red Cross Training

American Red Cross Lifeguarding courses—Lifeguard Training and Basic Lifeguarding—focus on training people who already are good swimmers. Participants who are not certified in first aid and CPR must take American Red Cross Standard First Aid or an equivalent course before being certified. The American Red Cross Lifeguard Training course covers the skills and knowledge required for effective lifeguarding at swimming pools and at nonsurf, open-water beaches. These facilities need trained lifeguards who can recognize and eliminate or minimize potential dangers. These people must know how to educate the public on their role in keeping a facility safe, as well as how to establish and carry out emergency plans for specific facilities.

In addition to the American Red Cross Lifeguard Training course, in 1990 the American Red Cross introduced the Basic Lifeguarding course which provides the minimum basic knowledge and skills necessary for a person to qualify as an **entry-level** lifeguard. This course does not provide training in facility or lifeguard management. This Basic Lifeguarding course teaches lifeguards to recognize the common hazards that may be found at various types of aquatic facilities, with an emphasis on swimming pools, and develops the lifeguards' knowledge and skills to help eliminate or minimize and to respond to such hazards.

The American Red Cross does not intend to provide all-inclusive lifeguard training courses. One course cannot provide in-depth training for lifeguards at all types of aquatic facilities. Lifeguards must become familiar with the characteristics of the facility where they are working. They continually must train in order to maintain a high degree of physical and mental readiness. They need to maintain current certifications in first aid and cardiopulmonary resuscitation (CPR). They also may need to take additional training that relates to their duties and responsibilities, such as pool operation and other areas that may not be covered in programs developed by national organizations.

This text focuses on the skills and knowledge an individual requires to properly assume lifeguarding responsibilities at a swimming pool, water park, or a protected (nonsurf) open-water beach. This text emphasizes that additional training will need to be provided by aquatic facilities where lifeguards are employed. It is incumbent upon the employer to provide facility-specific training.

2 Requirements for, and Responsibilities of, a Lifeguard

6 Personal Characteristics Required
7 Knowledge Required
8 Skills Required
8 First Aid
8 Cardiopulmonary Resuscitation (CPR)
9 Responsibilities

The primary responsibility of a lifeguard is the safety of the aquatic facility users. A lifeguard must have the knowledge and ability to rescue someone in trouble. Even more important, however, are the knowledge and skills to prevent aquatic emergencies and injuries from occurring in the first place.

The management of each aquatic facility should establish requirements for all its lifeguards. Many of these will reflect state and local ordinances, such as requirements for age, physical fitness, and certification in lifeguard training, first aid, and cardiopulmonary resuscitation (CPR). Other requirements may be tailored to the specific needs of the facility. In addition to these requirements, however, lifeguards need certain personal characteristics, knowledge, and skills to function effectively. These are discussed below.

Personal Characteristics Required

Reliability

Lifeguards should arrive for work on time, assume responsibilities, accept assignments, and show initiative in making constructive suggestions for better facility operations.

Emotional Stability

Lifeguards must be able to make sound decisions that conform to facility policies when dealing with difficult situations. Decisions a lifeguard makes may affect the total facility staff.

Courtesy and Consistency

Lifeguards must be firm, fair, consistent, and courteous in order to gain the respect and cooperation of the public.

Physical Fitness

Lifeguards must have a high level of fitness at all times. Speed, strength, endurance, and flexibility are vital to a rescue. Lifeguards should participate in in-service training programs that include practice of swimming, rescue, and first aid skills. Where needed, weight training and exercise programs may be included.

Positive Attitude

The lifeguard must understand his or her responsibilities to the employer as well as to the public. Cooperation with other guards in team efforts and adherence to rules and regulations are important to the successful operation of a facility.

Knowledge Required

Rules and Regulations

The lifeguard must be thoroughly familiar with all the rules and regulations of a facility and must be able to explain the necessity for each rule and regulation.

Facility Characteristics

Lifeguards must be able to identify any hazardous or potentially hazardous areas of the facility so that dangerous situations can be minimized or eliminated. Each lifeguard must be thoroughly aware of all potential emergency situations and thoroughly familiar with the required follow-up procedures.

Chain of Command

Lifeguards must be familiar with the operations procedures of the facility as well as the chain of command and the positions of the lifeguards within that structure (see Appendix A). A lifeguard needs to know the names, titles, and responsibilities of all staff. Each position in the chain of command should have clearly defined responsibilities.

Depending on the lifeguard's experience, position in the chain of command, and the needs of the facility, the lifeguard may acquire additional responsibilities when not on duty. These may include facility maintenance, swimming instruction, or coaching duties. Lifeguards should have no doubt about the job responsibilities, work schedule, or other duties.

Legal Responsibilities

Lifeguards must be aware of the legal implications of their job. All lifeguards must realize that they are responsible for their actions and also for their failure to act properly. Individuals who accept the position of lifeguard also accept an obligation to the organization responsible for the facility. That obligation is to fulfill all of the duties of the position, to participate in all training sessions, and to continually update all necessary skills and knowledge. Lifeguards also accept an obligation to provide as safe a facility as possible for the users.

Skills Required

Swimming

Lifeguards must possess a high level of swimming skills. Physical fitness is equally important, essential for swimming endurance and swimming speed. Since the lifeguard may have to support a victim during a swimming rescue, and sizes and conditions of victims and the conditions of the water vary, the lifeguard may need to modify stroke movements while swimming.

Use of Equipment

Lifeguards must know how to use effectively all rescue equipment and must ensure that it is in good working order at all times. Rescue equipment, which includes first aid equipment, has become more standardized over the years. The particular equipment used at a facility is determined by the needs, the budget, and state and local ordinances, but state-of-the-art lifeguarding utilizes the rescue tube for many swimming rescues and it should be considered standard equipment in most facilities. (See Chapter 6, "Equipment.")

Lifeguards may be responsible for maintaining the correct water chemistry, filtration, and communications equipment. The use and condition of this equipment has a direct influence on the safe and efficient operation of a facility.

First Aid

Lifeguards must be certified in first aid. American Red Cross Standard First Aid is the recommended minimum. The level of additional training required should depend on the specific type of facility.

Cardiopulmonary Resuscitation (CPR)

All lifeguards must be certified in adult CPR skills as a minimum. The aquatic facility and/or the state may require additional training.

Responsibilities

As stated before, the primary responsibility of lifeguards is to ensure the safety of facility users. This includes—

- Preventing injuries and minimizing or eliminating hazardous situations—Lifeguards must supervise all activities in their assigned area—the pool deck or nonsurf beach as well as the water. Lifeguards must never leave an assigned area until properly relieved. The area should be kept clean and there should be a system to ensure that all gates and doors are locked and all users have left when the facility is closed.
- Responding quickly to all emergency situations in the water—Using the proper procedures and techniques, lifeguards must be able to assist or rescue anyone in a distress or drowning situation. The lifeguard must constantly scan his or her assigned area and be able to recognize swimmers who need help.
- Administering first aid to victims of an emergency—Lifeguards, within the limits of their training, must be able to provide the initial emergency care necessary to sustain life until emergency medical services (EMS) personnel arrive.
- Informing other lifeguards and facility staff when more help and/or equipment are needed—In emergency situations, lifeguards must be able to summon support and relay similar requests from other lifeguards.

The secondary responsibilities of lifeguards include—

- Observing and enforcing all rules and regulations of the facility—Lifeguards must obey the same rules as the facility users. They also must obey the rules specific to the facility staff. Lifeguards should never drink beverages of any kind, smoke, eat, read, or listen to a personal radio while on duty.
- Educating the facility users and informing them of the purpose of and need for rules and regulations.
- Helping parents or family members to locate a missing child or adult—All aquatic facilities should have procedures for searching for missing persons. While considering the needs and concerns of parents and family members, the facility must maintain the continued supervision and safety of the other users.
- Completing all required records and reports on schedule and submitting them to the proper person or office—Repair of damaged or defective equipment, budget recommendations, and personnel policies depend on records being properly kept and processed.

- Carrying out all additional duties assigned by the supervisor—A facility may assign an off-duty lifeguard who possesses additional training to assist in teaching swimming classes, to be the coach of aquatic sports, or to supervise other staff members. The lifeguard may also have maintenance duties, such as cleaning the shower or locker room, picking up litter, backwashing the filters, maintaining the proper chemical balance of the water, vacuuming the pool, and dealing with lost and found articles.
- Conducting oneself in a professional manner—A lifeguard is a representative of the aquatic facility and he or she has day-to-day contact with facility users. The lifeguard's conduct greatly affects the public's attitude toward the facility.

As lifeguards move up in the chain of command, their responsibilities increase. An assistant head lifeguard may have supervisory responsibilities or may be responsible for specific inspections of equipment. A head lifeguard may be responsible for the performance of all the other lifeguards. The training and evaluation of the lifeguards, as well as the scheduling of activities, may also be assigned to the head lifeguard. All lifeguards must be thoroughly familiar with their responsibilities. However, at no time should additional duties interfere with the lifeguard's primary responsibility—the safety of the facility users while in, on, or around the water.

3 Selection and Training

12 Preemployment Requirements

14 Orientation

17 In-Service Training

20 Suggested In-Service Training Curriculum

The proper training of lifeguards is an ongoing process. It begins with the development of swimming and personal safety skills and any prerequisite courses for the job, such as training and certification in first aid and cardiopulmonary resuscitation (CPR). Lifeguards also should expect to have training specific to the aquatic facility where they are employed, such as an orientation to facility hazards, risk reduction, methods of operation, organizational structure, and other pertinent subjects. Even after they are employed, there will continue to be a need to participate in physical training, discussions and demonstrations of emergency action plans, and training in other job responsibilities as part of the ongoing training process.

Preemployment Requirements

Physical Examination

Lifeguard candidates may be required to submit the results of a medical examination by a licensed physician certifying that they are able to perform the duties of a lifeguard. An examination is often required before employment each season or on a periodic basis. Everyone responsible for hiring lifeguards should know what physical qualifications are required by state and local ordinances.

Lifeguard Training

Owners and managers of aquatic facilities also need to know all state laws and state and local agency requirements for the training of lifeguards. Some agencies use a statement such as "Lifeguards must have a current American Red Cross Lifeguard Training certificate or equivalent." Local agencies are responsible for knowing the equivalence of national training programs. Before being hired, all potential lifeguards at pools and nonsurf beaches must show proof of current lifeguard training from a certifying organization such as the American Red Cross or the YMCA.

The screening tests for lifeguard candidates should be conducted, if possible, for all candidates at one time. Testing should include both written and practical tests to determine each candidate's knowledge and skills. The tests are often adjusted for the facility giving the test. For example, an entry into a swimming pool may differ from an entry into a lake. The tests should be scored and the results recorded on the candidate's application and placed in his or her personnel file for future reference.

Swimming Skills

All lifeguard candidates should be tested on their swimming ability, speed, and endurance. Lifeguards need strength and stamina to swim to a victim, to support a victim in deep water, and to bring a victim to safety. Therefore, all candidates should be tested on their swimming skills in two categories: (1) swimming alone, to simulate the swim to a victim, and (2) swimming while supporting a 10-pound diving brick, to simulate carrying a victim. Some events should be timed and the results posted on each candidate's application.

Some swimming events that may be used for qualifying are—

- Swim 500 yards continuously using each of the following strokes for at least 50 yards each: crawl stroke, breaststroke, elementary backstroke, sidestroke.
- Surface dive to a minimum depth of 9 feet and bring a 10-pound diving brick to the surface.
- Surface dive to a minimum depth of 5 feet and swim underwater for a minimum of 15 yards.
- Tread water for 1 minute.

Note: The size and type of the aquatic facility will determine which qualifying events are most applicable.

First Aid Skills

Lifeguards need a working knowledge of first aid to be able to properly assist victims. Because of this, one of the requirements for certification in American Red Cross Basic Lifeguarding and Lifeguard Training is that a person be certified in first aid. This certification in first aid is something that should be required even if it is not a state law.

Lifeguards should be tested on their first aid knowledge and skills. This can be done during the lifeguards' orientation or the initial sessions of in-service training by including a review of the skills and knowledge in the Red Cross Standard First Aid course. In addition, simulated situations should be set up to test the lifeguards on the handling and care of victims in the types of incidents that could occur in the facility. Examples are—

- A child runs, falls on a deck, and suffers abrasions on the legs and arms.
- A drowning victim needs to be resuscitated.
- A person hits the diving board during a dive.
- A person suffers from heat stroke.

Cardiopulmonary Resuscitation (CPR) Skills

All lifeguards must be certified in CPR. In areas where candidates are not certified before being employed, CPR must be included as part of the orientation and the in-service training program for all aquatic facilities. A certified course conducted by the American Red Cross or another nationally recognized certifying agency should be scheduled as soon as possible. Periodic refresher training should be conducted throughout the operating season of the facility.

Boating Skills

At camp waterfronts and at open-water, nonsurf areas, lifeguards should be trained in the proper use of small boats for rescues. If boating safety skills are not a prerequisite for employment, training and certification should be included as part of the orientation and/or the in-service training program.

Orientation

Once lifeguards have been hired, the owner and/or manager of an aquatic facility is responsible for ensuring that all of them receive a seasonal orientation to their job and to the facility. These subjects should also be periodically reviewed in the in-service training program.

Lifeguards are under constant observation by management, other lifeguards, and the public. The actions or reactions of the lifeguards have a direct bearing on the attitudes of these groups. Therefore, lifeguards must fully understand and carry out their obligations.

Lifeguards should receive an operations manual as part of their orientation. The manual should contain the following items:

- Job description
- Policies
- Procedures
- Rules
- Regulations and methods of enforcement
- Responsibilities
- Emergency plans
- Samples of records used at the facility
- A list of emergency telephone numbers
- The chain of command
- The method used for evaluating lifeguards

The person supervising the lifeguards is responsible for updating all the material contained in the operations manual. The lifeguard is responsible for ensuring that this manual contains all the required material and for reviewing it.

Lifeguards who have worked at the facility before should be given a new orientation at the beginning of each season or whenever there is any change in the information. The subjects that should be covered in the lifeguard orientation are discussed below.

Management

All lifeguards should be thoroughly familiar with the chain of command for their facility (see Appendix A). Lifeguards need to know where they fit into that structure, who their supervisor is, and their own responsibilities. Individuals in supervisory positions (for example, head lifeguard or pool manager) must also know the responsibilities of those lifeguards they supervise. Each position in the chain of command must be clearly defined, since lines of authority can be confusing in larger organizations and facilities. For example, an aquatic director may be responsible for supervising both a pool manager and a head swimming instructor. A lifeguard may have duties both as a lifeguard and a swimming instructor. In this latter case, the lifeguard may be supervised by both the pool manager and the head swimming instructor.

Communications through the chain of command must be clearly understood by the lifeguards. They should know—

- To whom they are responsible and from whom to take orders.
- To whom they should go with specific problems or general requests.
- To whom they should go with complaints, problems, or suggestions.

Operation of the Facility

During orientation each staff member should be assigned a specific job. Each new lifeguard, if possible, should be assigned to work with an experienced lifeguard.

The head lifeguard or the manager should make up all schedules for the facility. A daily schedule of activities, such as free swims, instructional courses, and swim team practices, should be posted so that everyone entering the facility knows what areas will be open or closed during the day. The work schedule for the lifeguards, including breaks, should be posted in the office and in the lifeguard room. Any changes to or substitutions on the schedule must be cleared first with the manager or the head lifeguard.

At no time should any additional responsibilities take priority over a lifeguard's main responsibility—the safety of the facility users. However, sometimes an off-duty lifeguard must accept responsibility for the care and maintenance of the facility and equipment. Therefore, information on how to keep the area clean and how to test the water and operate the filtration system should be part of all lifeguards' facility orientation. This information should be described in detail in the operations manual.

The safe and smooth operation of an aquatic facility depends on the actions and conduct of all its staff. Lifeguards, locker room attendants, and other staff members should watch for any improper use of the utilities. Showers left running, lights left on, or misuse of the telephone can effect the operational budget of an aquatic facility, including equipment purchases, future raises, and maintenance costs.

Rules and Regulations

The orientation for lifeguards must cover the facility's rules and regulations. Methods of enforcement need to be clear and specific so that all lifeguards use consistent procedures when enforcing the rules. Rules that apply to the facility users, as well as rules that apply to the lifeguards only, need to be thoroughly explained to the lifeguards. Rules governing the conduct of the lifeguards include—

- Wearing of a proper uniform.
- Daily opening and closing routines.
- Restrictions of behaviors such as smoking and drinking.

Lifeguards should be evaluated on their adherence to all rules that apply to them.

Preventive Lifeguarding

The orientation to an aquatic facility should familiarize lifeguards with the hazardous areas. Knowing where incidents or injuries are likely to happen often determines where lifeguards are stationed, when they are rotated, or how they scan their areas of responsibility. The orientation should also include discussion of procedures to follow for stormy weather, currents and tides, and the clarity and possible pollution of the water.

Records and Reports

An orientation should include a complete explanation of all of the records and reports for which the lifeguards are responsible and should emphasize the need for them to be on time and accurate.

Legal Responsibilities

The legal counsel for the facility may be asked to present a discussion of legal responsibilities. A general discussion of your state's laws will provide a basic orientation for each lifeguard.

Emergency Procedures

Every staff member should be familiar with the facility's emergency action plans for all types of emergencies. Lifeguards must know their individual responsibilities during each type of emergency. Each lifeguard should be trained as a primary rescuer and as a back-up rescuer.

In-Service Training

The management of the aquatic facility is responsible for in-service training. Regularly scheduled sessions should cover key skills and procedures. If an in-service training program is not established by the facility management, the lifeguard needs to review and practice skills regularly.

Lifeguards require a high degree of technical skill and knowledge. Their ability to react quickly and correctly will develop and improve with experience, practice, and proper training. Opening in-service training sessions for the public to view is a good public relations procedure for all aquatic facilities.

Each in-service training program should be tailored to meet the needs of the facility. Certain things are best learned at the locations where the lifeguards will be practicing daily. For example—

- Swimming pool lifeguards may need to learn about pool filtration and the maintenance of the correct chemical balance of the water.
- Lifeguards at nonsurf beaches need information about currents and tides, about bottom conditions, and about search and recovery operations.
- All lifeguards must be aware of and know how to deal with potentially hazardous areas specific to their facility, such as blind spots, slippery decks or docks, and drop-offs.
- Times and distances for swimming events will be determined by the facility's size and structure.

The scheduling of training sessions will be based on the facility's hours of operation and staff availability. At an outdoor facility, the weather will affect the activities covered and the length of each session. The scheduling of sessions, subjects, and events will also be determined by such things as—

- Size of the facility.
- Number of lifeguards employed.
- Number of lifeguards on duty at any one time.
- Amounts and types of equipment available.
- Facility budget.
- Types of previous incidents, injuries, and emergencies encountered and their frequency.

Emergency Medical Services (EMS) System

Lifeguard training sessions that include emergency medical services (EMS) personnel should be scheduled whenever possible. Lifeguards transfer some victims to the care of EMS personnel. Cooperative training sessions help prepare for a smooth transition.

Lifeguard Competitions

One of the best methods of motivating and maintaining lifeguard staffs during the operating season is through the use of lifeguarding competitions. These events have been publicized nationally in the newspapers and on television and are exciting and entertaining for both the competitors and the spectators. Lifeguarding events simulate actual lifeguarding rescue techniques. These include swimming rescues, spinal injury management, equipment rescues, CPR and first aid scenarios, and timed events. Participants can practice these at their facility during in-service training programs and then compete in local, regional, state, and national competitions against other lifeguards and facilities. The events are selected to challenge both the decision-making processes and the physical rescue skills needed by every lifeguard.

Lifeguarding competitions are exciting and challenging, and it is valuable for lifeguards to train for and compete in them. They encourage teamwork, personal development, and staff and facility pride. The competitions are also an excellent form of training and help lifeguards maintain the skills and attention needed to prevent and respond properly to aquatic emergencies.

Physical Training and Conditioning

The fitness requirements for lifeguards may differ according to location and type of facility. Lifeguards at swimming pools and lifeguards at waterfronts must be physically fit in order to perform their duties, but their specific performance requirements may be different.

Developing physical fitness demands time and effort. Researchers have found that fitness can be achieved by exercising 3 to 4 days per week for a minimum of 20 minutes each time. A fitness program can be easily integrated into the lifeguards' weekly work schedule. Workouts should include both general and job-specific conditioning exercises.

Each physical conditioning session should begin with a warm-up. Suddenly beginning strenuous exercise without a warm-up may lead to a muscle pull or other injury. The training session should end with a gradual cool-down that permits the body to return slowly to its normal, preexercise state.

Job-specific conditioning consists of exercises designed to improve the rescue skills required at a particular facility.

Suggested in-service practice for water-rescue skills includes—

- Swimming events and rescue situations.
- Speed and endurance swimming events.
- Approaching and rescuing a victim.
- Treading water and carrying diving bricks.
- Shallow- and deep-water assists.
- Paddling a canoe.
- Rowing a boat.
- Paddling a rescue board.

Fitness Testing

Tests of swimming speed and endurance, as well as tests of the ability to handle a struggling victim, seem to be reliable in determining qualifications and the success of fitness training.

TABLE 1

Suggested Performance Standards for Lifeguard In-Service Training

	Level of Performance in Minutes and Seconds	
	Pool	**Calm, open water**
1. Recovering 10-pound object in 10 feet of water with a 30-foot approach	0:09.5	0:08.0
2. Towing 10-pound object 50 yards (stroke of choice)	1:20.0	1:10.0
3. Swimming 50 yards (stroke of choice)	0:33.5	0:30.0
4. Swimming 500 yards (stroke of choice)	10:00.0	8:30.0
5. Treading water 2 minutes supporting 10-pound object with both hands	P	P

P = Pass

Timed events are valuable for several reasons. First, they are objective and give the examiner something in addition to his or her experience with which to evaluate potential guards. Second, timed events give the lifeguards feedback about their capacity to handle emergency situations. Third, they provide a measure of conditioning. A time goal is a tangible number, expressed in minutes, seconds, and tenths of seconds, by which success can be measured. Throughout a lifeguard's employment, timed events can be used to determine if the guard needs more conditioning and to provide information about the guard's suitability for continued employment.

Modern lifeguarding is a difficult and demanding profession that requires a diversity of skills. Physical fitness for lifeguarding is one aspect that can be objectively evaluated. Timed tests of swimming and rescue ability represent the best indicators presently available for determining a potential lifeguard's capabilities. In addition, they serve as guidelines by which training and conditioning can be judged for appropriateness.

Table 1 lists suggested performance standards that may be useful in evaluating lifeguards. Specific modifications may be required for some aquatic facilities.

Suggested In-Service Training Curriculum

Following is a description of skills for in-service training programs. Some skills may not be applicable to all facilities and some may need to be modified. During in-service lifeguard training, a nonparticipating lifeguard should be on duty.

Swimming Events

These events are designed to improve overall swimming ability. Lifeguards should swim at rescue speed during each event.

- **Run-swim-run**—Leave lifeguard stand, run 100 yards along nonsurf beach, enter water, swim out 25 yards, turn and swim 50 yards parallel to shore, swim back to shore, then run 50 yards along beach back to lifeguard stand.
- **Run-swim-run**—Leave lifeguard stand, run 50 yards, enter water, swim 50 yards, leave water, run 50 yards back to lifeguard stand.
- **500-yard swim**—Swim 100 yards out from beach, turn and swim 300 yards parallel to shore, then turn and swim 100 yards back to beach.
- **Buoy race**—Run 50 yards, enter water with rescue tube or buoy, swim 50 yards to victim, then swim 50 yards back to safety towing victim. Victim's height and weight should be in proportion to those of the lifeguard.
- **Swim and recover object**—Swim 25 to 50 yards, surface dive to depth of at least 9 feet, and recover 10-pound brick. It may be necessary to make more than one dive in murky water. A variation of this drill would be to recover two objects during one dive.
- **Enter water and swim underwater**—Dive into clear water to depth of at least 9 feet and swim underwater 25 yards. The entry should be feetfirst if the water is murky. In swimming pools no deeper than 9 feet, the entry should be made feetfirst.

Lifeguarding Events

Lifeguarding events are designed to simulate a one-rescuer/one-victim situation. The events described below should be combined and varied. For example: jump into shallow water, approach the victim from the rear, move to the ready position, and maintain control of the victim in a single-armpit tow. Specific techniques used in performing these skills are included in Chapter 8, "Rescue Fundamentals," and Chapter 9, "Rescues."

- **Entries:**
  - Jumping and diving into deep water, minimum depth of 9 feet, from guard stand or guard tower that is 6 feet high—jumping only; from deck or dock—jumping or diving.
  - Jumping and diving into shallow water, minimum depth of 5 feet, from height of no more than 18 inches above surface of water. All dives must be shallow dives. Entries should be done from standing, stationary position, and also with the lifeguard running from a deck or dock and from the shore.
- **Approaches:**
  - Victim on surface—active:
    - Rear
  - Victim on surface—passive:
    - Front
    - Rear
    - Dive to side or rear
- **Carries:**
  Distances should be the length of the pool or at least 50 yards at beaches:
  - Cross-chest
  - Alternate cross-chest
  - Single-armpit tow
  - Double-armpit tow
  - Wrist tow
- **Defense:**
  - Block—one-hand, two-hand
- **Escapes:**
  - Front headhold
  - Rear headhold
  - Arm-grip/wrist-grip
- **Removal From Water:**
  The lifeguard positions the victim for rescue breathing after removing the victim from the water in each of the following situations:
  - Pool:
    - Shallow water
    - Deep water
  - Beach:
    - Shallow water
    - Drag to beach
    - Pack-strap carry

- **Rescue Breathing:**
  - Without rescue equipment:
    - Shallow water
    - Deep water
  - With rescue equipment:
    - Using swim fins for support
    - Flotation device, rescue buoy, rescue tube
    - Rescue board
    - Rescue boat
- **Use of Rescue Equipment:**
  (Rescue equipment will vary with each facility's needs.)
  - Reaching poles and/or shepherd's crook
  - Ring buoy
  - Rescue tube/buoy:
    - Conscious victim
    - Unconscious victim
  - Lines and reels
  - Rescue board
  - Mask, fins, and snorkel
  - Additional equipment as available
- **Rescue-Boat Operations:**
  (Lifeguards should be trained in the type of boat used for rescues at their facility.)
  - Launching boat
  - Approaching victim
  - Contacting and assisting victim

First Aid

Successful completion of the American Red Cross Standard First Aid course is the minimum first aid requirement for all lifeguards. Lifeguards need additional training in specific areas. For example, pool lifeguards may need information on chemical poisoning. Camp waterfront lifeguards may need training in caring for victims who may have a longer wait for emergency medical services (EMS) personnel because response times may be longer in isolated areas. The review of knowledge and first aid skills should include—

- Control of bleeding.
- Care for shock.
- Splinting and bandaging.
- Care for seizures.
- Care for heat emergencies.

Rescue Breathing

All lifeguards should have in-service training that includes review of—

- Mouth-to-mouth and mouth-to-nose rescue breathing.
- How to clear an obstructed airway for a conscious victim and an unconscious victim.

Some lifeguards may need to be trained in the use of the particular resuscitation equipment used at their facility, including resuscitation masks.

Cardiopulmonary Resuscitation (CPR)

All lifeguards should practice CPR on manikins. They should practice the skills for—

- One-rescuer CPR for adult, child, and infant victims.
- Two-rescuer CPR for an adult victim.

Spinal Injury Management

All lifeguards should practice the spinal injury management skills required in—

- Shallow water.
- Deep water.

Physical Training and Conditioning

Lifeguards need to be in excellent physical condition and should keep fit with a program that includes—

- A warm-up.
- Flexibility exercises.
- Strength training.
- Speed training.
- Endurance training.

Preventive Lifeguarding

Lifeguards should receive in-service training that includes practice of—

- Victim recognition.
- Recognition of hazards and how to reduce or eliminate them.
- Enforcing rules and regulations and explaining their objectives.
- Public relations skills.

Emergency Procedures

Emergency action plans can never be practiced enough. Each type of incident and emergency will have its own set of procedures to follow. Situations should vary in each training session. The following are areas of concentration for each training session:

- Victim recognition:
  - Distress situations
  - Drowning situations
- Individual assignments
- Emergency calls and signals
- Back-up systems
- Records and reports

Maintenance Training

If the management of the facility has assigned maintenance duties to the lifeguards, these duties should be part of the in-service training program. The following are some of the more common maintenance duties requiring special training:

- Filtration systems—Depending on the type of system, methods of backwashing or cleaning the filters must be reviewed.
- Pool chemistry—The safe handling of chemicals must be reviewed, as well as how to handle emergencies involving chemicals, for example, a chlorine gas leak. Lifeguards should practice putting on, testing, and using a self-contained breathing apparatus. They must know the location of this equipment.

Recording In-Service Training

Records of training sessions should be maintained, with evaluations and any test results recorded for all staff members. An in-service training log should contain the following information:

- Meeting minutes
- Date of training session
- Subject(s) covered
- Name(s) of instructor(s)
- Name(s) of lifeguard(s) in attendance
- Length (time) of session
- Scores in any tests, physical or written
- Name(s) of lifeguard(s) absent

4 Records and Reports

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Records and Reports

Records and reports are required at many aquatic facilities. Financial records or payroll sheets may be used only by management. Injury report forms may be used specifically by lifeguards. Other records are used by supervisors for in-service training and personnel evaluations. The information in this chapter is presented to familiarize everyone involved in the operation of an aquatic facility with the records and reports that may be required and to explain the purpose of these records and reports. A facility will operate more smoothly if the staff understands the records and reports required. This understanding may help staff members move higher on the facility chain of command by increasing their knowledge of the facility's total operation.

Accurate records and reports are essential to sound management of aquatic facilities. Usually, the larger the facility and its management structure, the more records and reports it may use. Each facility has its own forms, and a certain number of copies of each are usually required. Although reporting systems differ from one facility to another, the content of the forms is usually similar. Every lifeguard should be thoroughly familiar with each record or report form. Records and reports are kept for the following reasons:

- To provide data that is helpful in making decisions regarding equipment, schedules, personnel, procedural changes, and improvements.
- To provide data that can be used for research into the causes and prevention of injuries and fatalities.
- To provide the basis for budget recommendations and future expenditures and their justification to management.
- To comply with state and local laws that require specific information about sanitation and maintenance of aquatic facilities.
- To provide documentation of incidents and injuries for use in risk management programs, compliance with federal laws, and possible legal actions.

Records and reports must be signed, dated, filed, and kept at the facility. Copies of all reports concerning an emergency must be forwarded to the proper agencies as soon as required.

The following sections discuss some common types of records and reports and give the general information contained in each. This information can easily be adapted for use by a specific facility.

Preseason Records

Preseason is the period before the facility opens for use. The forms and information listed below, in whatever format used, should be available at the facility or the facility's main office.

Employment Application

If a facility uses general employment application forms, there should be an attachment requesting information specific to the lifeguard position. Some application information may be confidential. This information should be kept at the proper office, such as personnel office, department headquarters, or camp office. Applications submitted to a personnel office should include copies that can be kept at the facility. These copies may be helpful if lifeguards need to be replaced later in the season.

The job-specific attachment should include the following information:

- Name.
- Address.
- Social security number.
- Telephone numbers—home, other work number.
- (If the agency has different types of facilities)
  Name of facility application is for:
  Pool _____ Lake _____
- Certifications (lifeguard, first aid, CPR, any others that may be required) and the expiration date(s), name(s) of instructor(s), name(s) and location(s) of organization(s) issuing the certificate.
  (Photocopies of all certifications should be kept on file at the facility.)
- Physical examination: date and results of last examination. (Attach form, if needed.)
- Lifeguarding experience, if any.
- Preemployment test scores.
- Letters of recommendation that address the applicant's maturity, judgment, and reliability.

Preemployment Tests

All candidates should take—

- A written test covering lifeguarding, first aid, CPR, and any other areas specific to the job.
- Skills tests covering lifeguarding, first aid, and CPR. (Scores and times should be attached to the application and discussed with the candidate during interviews.)

Chain of Command

A copy of the chain of command for the facility should be given to each candidate. The lifeguard's position in the chain of command must be clearly explained to and understood by each candidate before employment (see Appendix A).

Job Description

Job requirements, limits of authority, and information pertaining to a lifeguard's position and accountability, both for on and off duty, should be shared with each candidate. (See sample job description, Appendix B.)

Employment Forms

After a candidate is hired, he or she should be given—

- State and federal tax forms.
- A physical examination form.
- Information about employment benefits.
- Information about personnel and/or other policies of employment.
- Other appropriate personnel forms.

Inventory

Each facility should have an inventory of all equipment and material used at the facility. The inventory should include the condition and quantity of each item listed.

Emergency Telephone Numbers

A complete list of emergency telephone numbers should be given to each employee, and one list should be posted near the telephone at the facility. The list should include numbers for the—

- Poison control center (PCC).
- Emergency medical services (EMS) system (ambulance).
- Police department.
- Fire department.

The list also should contain the names and phone numbers of one or two people on the management level in the chain of command.

Additional telephone numbers that may be needed at an aquatic facility include those for the—

- Manager.
- Head lifeguard and/or assistant manager.
- Health department.
- Water department.
- Gas utility company.
- Electric utility company.
- Chemical supply company.
- Weather service information office.
- Animal control office.
- The local American Red Cross office.
- Diving Alert Network (DAN) (for pressure-related scuba incidents).

At isolated facilities, the list may also include telephone numbers for—

- Physicians (at least two). In a camp setting, the medical person may be the medical adviser or a staff member of the camp, such as the camp nurse.
- U.S. Coast Guard (Search and Rescue).
- Local police or sheriff's department.
- Helicopter—for emergency evacuation of a victim.

EMS personnel, such as police, fire, or rescue personnel, require specific information. To ensure that this information is clearly communicated, a script for the caller to follow should be prominently posted near the telephone (see Appendix F). The script should include the following information:

- Location:
  - Street address
  - City or town
  - Directions (cross streets or roads, landmarks, etc.)
- Telephone number from which the call is being made
- Caller's name
- What happened
- How many persons are injured
- Condition of victim(s)
- Help (first aid) being given

Note: The caller should ask if any further information is required and should **not hang up** until the EMS dispatcher (police, fire, or rescue unit) does so first.

In-Season Records

The in-season period starts the first day the facility is open to users and ends the day it closes for the season. Among the reports commonly required during the period are working reports, incident and injury reports, maintenance reports, and in-service training reports. Some of these reports are filed daily, some weekly, monthly, once a season, or at other specific times. The number of copies required for each varies, but there should be at least two copies of each report and one copy should be kept in a permanent file at the facility.

Working Reports

Well-maintained working reports help a facility be its most efficient. Examples of these reports are—

- Daily schedule—hours of facility operation; lifeguard schedules; rotation system; special activities such as swim classes and swim team practices.

- Financial records—admission receipts; snack bar or canteen receipts; sales receipts for equipment or clothing, such as swim goggles, T-shirts, or jackets.
- Course records—American Red Cross course worksheets and course record forms; enrollment and registration forms; attendance; health clearance, if required.

  One person should keep the instructional course records. However, each instructor is responsible for the accuracy of these records. Red Cross instructors should be sure that the forms are submitted to the local Red Cross unit as soon as possible after courses are completed. Copies of checklists and progress reports should be kept by each instructor and by the facility.
- Payroll records—time sheets, daily and weekly, that include the names of staff members and the times each checked in and checked out; responsibility of each staff member (lifeguard, maintenance, locker room attendant); salary schedule.
- Substitution—Record the name of the substitute and the lifeguard the substitute is replacing. The lifeguard in need of a substitute should have first cleared his or her absence with the manager or head lifeguard.
- Health and sanitation records—State and local health departments require some of the following records and reports. Some may also be required by the regulating agency, such as the park authority or the recreation department. These records include—
  - Water conditions—(The name of the person making the tests should be listed as well as the time of day and date the tests were made.) Conditions should include—
    - Temperature.
    - Turbidity.
    - Chlorine level: free, combined, total—or other halogen that may be used.
    - pH level.
    - Backwash schedule.
    - Vacuum schedule.
    - Alkalinity and calcium hardness.
    - Bacteria tests.
  - Daily attendance—(This can be counted by the total number of entrance fees, by turnstile, by periodic buddy checks in small facilities, by head counts taken several times each day.)
  - Weather conditions.
  - Locker room and rest room cleaning report.
  - Electrical equipment report.

- Facility data sheets, including—
  - Name of facility.
  - Depth of water—from ____ to ____.
  - Length and width.
  - Capacity—gallons.
  - Filters—type and number.
  - Turnover rate of circulation system.
  - Types of pumps and their respective capacities.
  - Capacity limit—per day; at one time.

  At waterfronts, the following additional information may be needed:
  - Currents and tides, if any.
  - Type of bottom.
  - Wind direction and velocity.
  - Cross-section drawing of area showing drop-off, ledges, and other hazards.
  - Pollution.
  - Trash pick-up schedule.
- Daily log—The manager or head lifeguard needs to keep a narrative of the daily operation. General comments about opening and closing times, along with comments about the conditions of the physical plant, personnel, and equipment, should be entered in the log. Any changes in scheduling due to illness or emergency, discipline problems, and routine maintenance should be included. All incidents and injuries should be noted, with reference to the specific record for that incident or injury. The log may be used by the management of an aquatic facility to evaluate the total facility, personnel performances, and day-to-day operations.

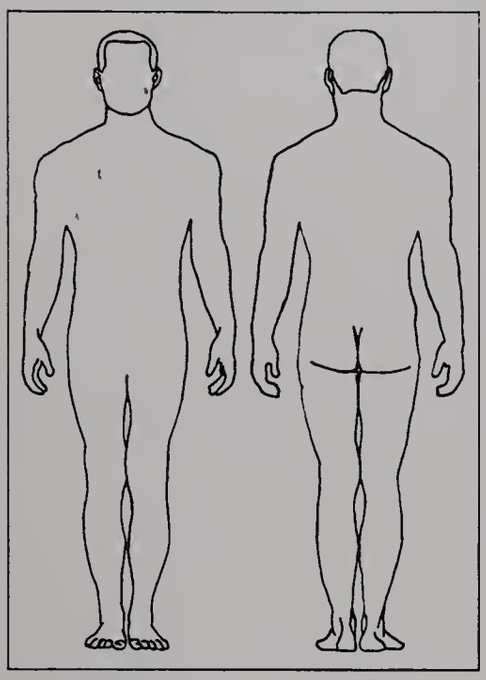


Figure 1
Diagram for injury report

Incident and Injury Reports

Reports of injuries, assists, rescues, or submersion cases can be classified as major or minor. These classifications can be separated further into categories, such as water rescues, first aid, and cardiopulmonary resuscitation (CPR). Forms that the facility requires with regard to state or local ordinances must be completed as soon as possible after an incident or injury.

Many agencies and organizations have adopted the use of a checklist format for injuries. For example:

Location of injury:

☐ Head	☐ Trunk
☐ Neck	☐ Back
☐ Arm	☐ Leg
☐ Shoulder	☐ Foot

Another method is to use a diagram of the body, showing a front and rear view. The person completing the report needs only to circle or check the area of the injury ***(Fig. 1).*** These formats are being increasingly used, since they can be completed quickly and can be evaluated rapidly. Some agencies add a column for comments. Others prefer to have the lifeguard give a narrative description of an incident (see Appendix C).

Lifeguards should be careful when completing the forms not to imply any fault for incidents, injuries, or fatalities. Information on these forms must be as specific and factual as possible, without attempting to suggest fault. **Reports should contain only facts, not opinions.** There should be **no** personal assumptions or observations by the lifeguard or comments as to how the incident could have been prevented.

The following lists include some of the more commonly required categories of information found on incident, injury, and rescue report forms. Some of the information may not be required or needed. The facility's legal and risk management advisers may provide suggestions for priority information.

- **Information about the victim and the injury:**
  - Name of the victim. (If the person was unconscious and had to be identified by another person, the identifier's name, address, and telephone number should also be included.)
  - Address and telephone number of the victim.
  - At a camp or school, the insured person's home address and telephone number.
  - Social security number of the victim.
  - Date of birth of the victim.
  - Sex of the victim.
  - Date and time of the report.
  - Date and time of the incident or injury.
  - Location of the incident—name and location of the facility.

- Area of the facility in which the incident occurred (shallow water, deck, locker room, deep water).
- Witnesses—names, addresses, and telephone numbers. (Witnesses' statements should be on separate forms.)
- Type of injury—drowning, fracture, burn.
- Location of injury—head, neck, arm, shoulder.
- Type of activity—diving, running, swimming.
- Description of the injury. (Briefly include any equipment that may have been involved, such as a diving board or a deck chair.)
- Status of the victim. (Explain the final status of the victim.)
- First aid care given and by whom.
- Whether taken by family. (A signature should be required from the individual accepting responsibility for the victim, particularly in cases in which the victim is a minor.)
- Name and telephone number of family contact.
- Whether transported by EMS personnel.
- Whether left facility on his or her own. (The signature of the victim or a guardian is required. In case of a minor, a witness should also sign the report.)

- **Information about the rescue, assistance, or aid given:**
  - Type of rescue—reaching, wading, swimming.
  - Distance to the victim—distance the lifeguard had to travel to get to the victim.
  - Number of lifeguards on duty.
  - Type of activity.
  - Assistance. (List any other staff who may have been involved.)
  - Equipment used—ring buoy, rescue tube, rescue buoy, backboard.
  - First aid. Was it administered? If not, why? If yes, what type? By whom?
    Rescue breathing given? For how long and by whom? If a resuscitator was used, by whom and for how long?
    Bleeding controlled? Care given for shock? Bandage applied?
    CPR given? For how long and by whom?
    Spinal injury? Description of complete care given, including the approach to the victim, how the victim was turned over in the water, and the application of a collar and backboard.
  - EMS personnel called? By whom and at what time? Time of arrival? What did EMS personnel do? Victim transported by EMS? Names of the EMS personnel and the location where victim was taken.

    If the injury was minor (scrape, bruise) and the victim was released, a record of care given should be kept on file. This should include the victim's name, address, and telephone number. The victim, or relatives of the victim in case of a minor, should sign this record.

- **Information about conditions at time of injury:**
  - Weather—clear, cloudy, rain, temperature, electrical storm, fog, wind direction, and wind velocity, if possible.
  - Water—temperature, clarity, and depth of water at the site of the incident. If the site is a waterfront facility, include information on the currents, on whether the surface was calm or choppy, and on the beach conditions, that is, sandy, rocky, level, steep.
  - Capacity—number of people in the water and on the deck or beach at the time of the injury.
  - Lights. If the facility is indoors, include information on the number of lights and their type, and the power or wattage for both underwater and overhead lights. Indicate the total number of lights and the number in use at the time of the incident. (The same information is required if the facility is outdoors and overhead lights were in use.)
  - Deck or dock:
    - Type—wood, concrete, tile.
    - Condition—wet, dry, broken.
  - Beach/grass areas—terrain surrounding the water, such as sunbathing areas.
- **Information about the cause of the injury:** Have this information in the form of a checklist. No space should be provided to include the opinions or judgments of the lifeguards or staff members as to the cause of the injury.
- **Information about the rescuers:**
  - Names, addresses, telephone numbers.
  - Certificates—lifeguard, first aid, and cardiopulmonary resuscitation (CPR).
  - Lifeguard experience and training.
  - Location of the lifeguard at the time of the incident.
- **Information on witnesses' statements:**
  - Name, address, telephone number of witnesses.
  - Date of statement.
  - Description of the incident. (This should be a narrative statement by the witness about what he or she saw. Allow witnesses to make statements in their own words without influence from facility staff.)

Maintenance Reports

All aquatic facilities must keep reports documenting maintenance of the facility and its equipment. These include—

- **Safety inspection reports**—Have a checklist format for routine inspections (daily, weekly, monthly) of the total facility using categories for conditions, such as satisfactory, unsatisfactory, and damaged. Indicate the action suggested and the action taken.
- **Supply records**—The current supply stock should be known at all times. Reorder any items that are low in stock before anything runs out. These items may include soap, toilet paper, paper towels, oxygen, first aid supplies, and pool chemicals. Make daily checks on supplies, especially first aid supplies. Perhaps the most important time to check and reorder supplies is immediately after an emergency. Always replenish anything that was used as soon as possible.
- **Maintenance requests**—All requests for maintenance should be submitted as soon as possible and be followed up, at least weekly, until the maintenance is completed. Include the date, the name of the person submitting the requests, and an indication of how soon the jobs should be completed. Keep copies of all requests at the facility.

In-Service Training Reports

Keep reports on all in-service training sessions. This information should include—

- Names of all persons who attended and who were absent or late.
- Subjects that were covered.
- Names of instructors.
- Schedule.
- Times and scores of participants.

Post a copy of this report on the lifeguards' bulletin board with a statement about how to make up training for those who were absent.

Evaluation of Lifeguards

Evaluate lifeguards on a regular basis. Review each evaluation with the lifeguard concerned. Copies of the evaluation forms should be forwarded to the proper offices (aquatic director, personnel). Keep a copy at the facility, and have the lifeguards retain their copy. Some of the criteria the lifeguards are evaluated on are—

- Skills and knowledge—swimming, first aid, timed tests.
- Uniforms—cleanliness and proper uniform.
- Attitude—accepting responsibility and authority.
- Cooperation with management and with other staff members.
- Conformation with standards, rules, and regulations.
- Participation during in-service training sessions.
- Relationships with other staff and users (public relations).
- Performance during emergencies.
- Promptness and dependability.
- Any other strengths or weaknesses that may affect performance.

Comments should be included about any equipment that may have been issued to the lifeguard at the start of the session. Examples: swimsuit, shirt, jacket, whistle, and identification.

There are a number of methods used for evaluating lifeguards. Some managers use a number scale (1 low, 5 high). Another method gives a rating of poor, average, superior, or excellent. A third method is a combination of the first two. Each performance factor is given a point grade, such as 1—does not perform, 2—performs to minimum standards, and 3—performs above minimum standards. Since lifeguards are evaluated on a number of factors, the points are added to reach a total. Then each category is given a range of points.

Written criteria for all of these categories should be included in the facility's operations manual. An aquatic facility can adapt any of these methods. Whatever method is used, it must be standardized for all lifeguards. The same individual or team of individuals should evaluate all the lifeguards at one facility, if possible.

Additional Records and Reports

In addition to the in-season reports discussed above, facilities need records and reports that cover—

- Missing persons.
- Lost and found articles.
- Disturbances.
- Insurance—explanation of coverage and worker's compensation forms.
- Swim meet materials—names, addresses, and telephone numbers of coaches, officials, judges, and timers.
- Miscellaneous forms, for example, up-to-date list of events, entry forms, and rules and regulations.
- Schedules of events—daily and weekly.
- Swimming instruction.

Postseason Records

Postseason is the period after the facility has been closed to the users. All postseason records should be maintained by the facility manager or the owner in order to have them ready for the start of the next season. In facilities that are operated year-round, records can be maintained on an ongoing basis. Examples of postseason records follow.

Inventory

A complete list of all supplies and equipment, identifying their condition and the quantities on hand, should be filed at the facility, and a copy should be kept by the manager or the owner. This inventory must be accurate, since it will be used as a projection for budget items for the next season.

Manager's Report

The manager's report is usually done in a narrative format, although it could be simplified by using a checklist format. The report could include information such as the total attendance for all activities, evaluations of the facility's operations, first aid records, rosters, schedules, and any recommendations for the future.

5 Preventive Lifeguarding

40 Rules and Regulations
43 Enforcement of Rules
45 Facility Capacities
47 Supervision of Swimmers
47 Areas of Responsibility
52 Lifeguard Stations
54 Rotating and Relieving Lifeguards
56 Incident and Injury Chart
57 Contour Depth Line
58 Potential Hazards

The duties and responsibilities of lifeguards vary from one facility to another. The most important responsibility is always to prevent emergencies and injuries in, on, and around the water. Prevention decreases the number of rescues lifeguards will have to make. A lifeguard must be aware of what is going on at all times in his or her area of responsibility and should be able to react to an emergency anywhere in his or her zone within 20 seconds or less. Inexperienced lifeguards need training to recognize and properly handle varied situations. This awareness is acquired through training and experience.

Rules and Regulations

Educating lifeguards and aquatic facility users is the best way to prevent emergencies and injuries. Courses such as American Red Cross Basic Lifeguarding and American Red Cross Lifeguard Training provide lifeguard candidates with the basic knowledge they require to protect others in an aquatic facility. These courses inform about the basics of lifeguarding and suggest additional training for specific facilities. This additional training is carried out once the individual is employed or agrees to work at a facility and is the responsibility of the facility management. All rules and regulations must be thoroughly explained, understood, and posted, so that the lifeguards can interpret and enforce them and continually educate the facility users. Rules and regulations should be presented positively.

Posting signs that read simply "Walk" is a positive approach to preventing potentially dangerous situations. Posting signs that use words such as "No Running" is a negative approach.

Some behavior should be encouraged and some not allowed at all. The positive approach to promoting desired behavior should be used whenever possible.

Acceptable behavior that should be encouraged includes—

- Showering with soap.
- Wearing suitable clothes for swimming.
- Showing concern for the safety of others.
- Checking the water area in front of the diving board before diving.
- Having only one person at a time on the diving board.
- Making sure the water is at least 9 feet deep before diving into it.

Behavior that should not be allowed includes—

- Running, pushing, horseplay.
- Leaving shoes on the deck.
- Smoking and eating in the pool area.
- Diving into water that is less than 9 feet deep.
- Bouncing more than once on the diving board (unless supervised).
- Attempting fancy dives without proper training and supervision.
- Using glass containers in the pool area.

Presenting the facility's rules and regulations in a positive way encourages the users to behave properly, thereby decreasing the incidents that cause the lifeguards to take disciplinary action. Everyone has a better time.

In some areas signs with bilingual wording may be necessary to indicate rules and warnings ***(Figs. 2, 3, and 4).***

Depth and distance markings may need to be posted in metric measure as well as in feet and yards.

Figure 2
No boating

Figure 3
No swimming

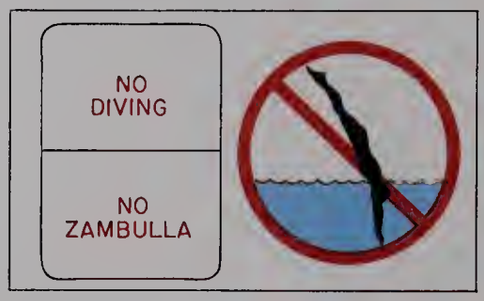


Figure 4
No diving

Rules of Conduct

A set of general rules will give the facility users guidelines for conduct and will help them enjoy the facility without endangering themselves or others. These rules should be posted in plain view inside the facility as well as at its entrance for easy reference by both lifeguards and users. The following examples of common rules can be adapted to individual facilities:

- Facility users are allowed in the swimming areas only when a lifeguard is on duty.
- Horseplay, such as running, splashing, shoving, or dunking, is not permitted.
- Swimming is allowed only in designated areas.
- Boating in designated swimming areas is not permitted.
- Diving is allowed only in designated areas.
- Sunbathing is allowed only in designated areas.
- Glass containers or metal objects are allowed only in designated areas.
- Throwing of objects, such as baseballs or rocks, is not allowed.
- Alcoholic beverages, drugs, or similar substances are not allowed.
- Profanity, improper behavior, and intoxication are not allowed.
- Bicycles are not allowed in the facility.
- Changing clothes is allowed only in locker rooms.
- Swimming at night without proper lighting (or when the facility is closed) is not allowed.
- Fishing in or near swimming areas is not allowed.

Nonswimmers and children under a specific age set by the facility may require adult supervision. The height and/or swimming ability of an individual may help the lifeguard to decide about the need for supervision.

Use of Equipment

There should be rules governing the use of the following equipment:

- Pool ladders. (No horseplay; one person at a time on ladder.)
- Lifelines. (No sitting or hanging on lifelines.)
- Docks and rafts. (No swimming under docks or rafts.)
- Lifeguard stands or towers. (No climbing on stands or towers.)
- Emergency equipment. (To be used by lifeguards only.)
- Small craft, surfboards, sail boards, and rescue boards. (Not to be used in swimming areas.)
- Diving boards. (Only one person allowed on the board at a time; the board should be mounted by ladder only; diver must wait for the previous diver to move to the poolside ladder; diver may make one bounce only [unless under supervision]; diver must dive off the end of the board and in line with it; after diving, diver must swim to the designated ladder or wall; swimming in the diving area is not allowed; hanging on to the board is not allowed; divers must dive only in designated diving areas.)
- Masks, fins, snorkels, and scuba equipment. (Rules depend on the type of facility.)
- Artificial flotation devices, such as inflatable air mattresses, rubber balls, inner tubes, or water wings. (Rules depend on the type of facility.) (Flotation devices used during instructional periods are not in this category.)
- Boats. (All persons using boats must wear a properly fitting life jacket [PFD].)
- Boat equipment. (All boat equipment, such as oars, paddles, or sails, must be returned to the proper storage area after use.)

Local Ordinances

The following are examples of rules established by local agencies such as health, police, and fire departments:

- Facility users must take showers before entering the water and after using the rest rooms.
- Swimming caps may be required.
- Persons with open sores or rashes are not allowed in the facility.
- Spitting, spouting water, or blowing one's nose in the water are not allowed.
- Chewing gum is not allowed while in the water.
- Food, drinks, and smoking are permitted only in designated areas.
- Pets are not allowed in the facility.
- Street shoes and street clothing are not allowed in the deck area.
- Only the maximum designated number of facility users are allowed in the facility at any one time.
- Swimmers must wear appropriate swimming attire.
- First aid equipment is to be used only by authorized personnel.

The facility management may establish additional rules, such as allowing only members or their guests to use the facility.

Enforcement of Rules

Dealing with discipline problems is of great concern to lifeguards and the management of aquatic facilities. The people who come to a facility usually have paid to use it, either through membership or general admission fees. In their excitement and eagerness to explore the facility, some may fail to take the necessary time to read signs or pay attention to the rules. They do not stop to think that their actions might cause injury to themselves, to another person, or perhaps to a small child who attempts to imitate irresponsible behavior. Lifeguards must be aware of actions that may cause injury and must know why rules must be enforced. Their concern must be for the safety of everyone in the facility, no matter what certain individuals may think.

While enforcing rules, lifeguards should explain briefly the reasons for the rules whenever possible. Pointing out the dangers of a certain act and its potential consequences may prevent many users, especially children, from repeating the act. In enforcing discipline, lifeguards must be consistent and fair. A positive, professional attitude is a must when enforcing a rule. Facility users can learn respect for the rules, for the lifeguards, and for the facility management if the lifeguards are firm and tactful when enforcing rules. Saying, "Sir, please stop. It is against the rules to do that," is an example of a firm, positive statement.

Enforcing rules helps to establish safe and correct attitudes. It is not meant to be degrading or a punishment. Often people who break rules at the facility may be unaware that those rules exist.

Lifeguards can reinforce positive behavior by stopping the improper action first, and then informing the individuals of the rules or regulations.

Lifeguards may determine methods of enforcing rules according to the age of the person who breaks them. One way of handling children is to have them sit out of the water for a certain amount of time. However, this type of action may be improper on a cold or windy day. Another way is to have children read all of the rules and then explain them to an off-duty lifeguard. Sometimes the attitude of a child's parents causes problems. If a problem occurs with a parent, the lifeguard should call on the head lifeguard or the pool manager to explain any action. Lifeguards should not get into an argument with a parent.

Teenagers and adults want to be treated like mature people. A simple correction and an explanation of the rules should suffice. The head lifeguard or the pool manager needs to be called in to deal with the situation if someone continues to break the rules. Expulsion from the area should be the last resort. The police may need to be called if a patron continues to be resistant.

Each facility needs a standard procedure to be followed if it becomes necessary to put someone out of the facility. This procedure should be posted in plain view so all facility users can see it. The procedure should contain specific reasons for ejection, the steps to be followed by the lifeguard and the management, and the involvement of law enforcement personnel, if necessary. Any such action should be recorded in the facility's daily log.

Facility Capacities

Each facility should establish the maximum number of people who can safely use the facility at any one time. This capacity limit allows users to enjoy the facility and at the same time allows proper supervision by the facility staff. Capacity limits are often established by the state or local department of health using ratios or formulas. However, it is very difficult for any regulatory agency to establish a formula that applies to all facilities because of the following differences:

- Sizes and configurations of the swimming areas, that is, length and width; shape (rectangular, L-shaped, U-shaped, Z-shaped, H-shaped); and setup for diving, swimming, wading, and for very young children.
- Water conditions, that is, the size of shallow- and deep-water areas; the clarity of the water (cloudy or murky); currents and tides are factors that can cause changes in water depth.
- Lifeguard's ability to see swimmers, which is affected by the size of the area and the amount of glare from the sun or from indoor lights.
- Nonswimming areas, particularly the size and location of the pool deck, dock, beach, or grassy areas.
- Type of activity, that is, competitive meets or contests, public swims, lap swimming, or lessons.

The management of a facility must comply with the capacity limits established by the appropriate regulatory agency. However, if no such limits are established or if management wants to make changes in these limits, the facility staff should work closely with the regulatory agency. An aquatic facility may set lower capacity limits than those established by a regulatory agency, but it may not set higher ones. The entire staff of the facility must know the capacity limits and must be fully aware of the procedures to follow to comply with the limits.

Regulatory agencies and facility management should consider the following factors when establishing a facility's capacity limits and when determining lifeguard-to-user ratios.

User Capacity

All areas of the facility should be dealt with separately when establishing maximum capacities. The areas for diving, swimming, and wading each will have a different concentration of swimmers. Enough deck or dock area must be provided to allow the users and the lifeguards to move safely from one area of the facility to another. The following are examples of formulas that have been used to establish capacity limits for swimmers and nonswimmers:

- X number of persons per X square feet of surface area of the total facility.
- X number of persons per X square feet of surface area for a specific water depth. (In this formula, "shallow" and "deep" water will have to be defined by the facility management or by the regulatory agency.)
- X number of persons in the water within X feet of distance to a diving board or tower.
- X number of persons on the deck within X feet of distance to a diving board or tower.
- X number of persons on the total deck area.

Lifeguard-to-User Ratios

Once total capacity limits are determined for an aquatic facility, the next step is to determine the number of lifeguards required to properly supervise that number of facility users. Some facilities, because of their size and/or shape, require that more than one guard be on duty at all times no matter how few people there may be.

If a regulatory agency sets the lifeguard-to-user ratios, a facility may still have to adjust them according to its peak hours, lifeguard schedules, breaks, environmental conditions, and possible emergencies. The following examples may be used to establish lifeguard-to user ratios:

- X number of lifeguards per X number of people in the facility.
- X number of lifeguards per X number of swimmers in the water.
- X number of lifeguards and a manager or assistant manager at all times.
- X number of lifeguards per number of square feet of pool surface area.

Provisions should be made to adjust the number of lifeguards as the number of people increases or decreases. Specific activities, such as instructional programs or swim meets, should have a direct supervisor, instructor, or coach for the participants. **The facility should provide separate lifeguard supervision for additional safety during these activities.** One person cannot safely perform the duties of lifeguard and coach or instructor simultaneously.

Supervision of Swimmers

The management of an aquatic facility has a legal and moral obligation to its users to provide the safest conditions possible. The management of the facility delegates this responsibility to the lifeguards, who are expected to recognize conditions or situations that may be hazardous. The facility and the users require uninterrupted and proper supervision at all times. Each facility should establish a system of supervision that allows for the safety of the users and does not put undue responsibilities on the lifeguard.

Facility Sections

One preventive step the facility management can take to manage various activities is to divide the swimming area into sections or zones. The total area can be zoned according to various activities, such as—

- Recreational swimming.
- Swimming laps for physical conditioning.
- Diving.
- Instruction—swimming, snorkeling, and so on.

All zones or sections require a lifeguard on duty. In open-water facilities, sections may also be zoned for boating or fishing. Zones that have hazards such as tree stumps, rocks, large areas of weeds, or shallow water (less than 5 feet in depth), should be posted "Danger—No Swimming," "Danger—No Boating," "Danger—No Diving," or "Danger—Shallow Water."

Areas of Responsibility

Proper supervision will, in most instances, prevent injuries. The positions of the lifeguards and the lifeguard stands will vary from one facility to another. Some of the factors to be considered in determining these positions are the—

- Size and shape of the facility—Certain sections of the swimming area have larger concentrations of swimmers. For example, there are usually more swimmers in shallow water than in deep water.
- Number of people in the facility—On warmer days, weekends, and holidays, the number of people in the facility increases.
- Number of lifeguards—When large numbers of people are expected, it may be necessary for the facility to have extra lifeguards on duty.
- Environmental conditions—If sun reflection, waves, wind, or debris prevent a lifeguard in a stationary stand from seeing the assigned area properly, roving lifeguards can maintain proper supervision.

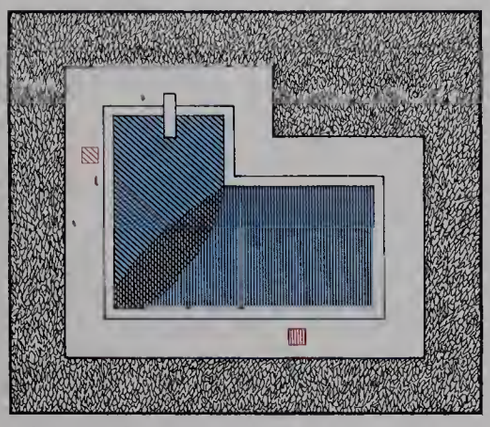


Figure 5
Example of zone coverage—2 lifeguards

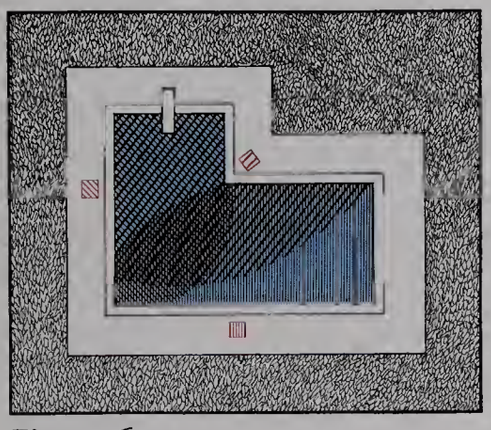


Figure 6
Example of zone coverage—3 lifeguards

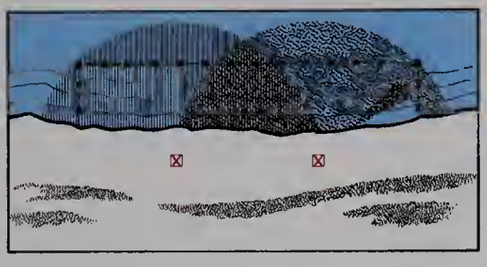


Figure 7
Example of zone coverage—2 lifeguards

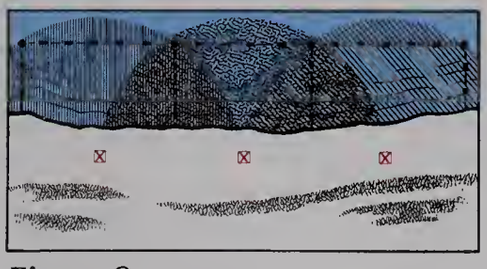


Figure 8
Example of zone coverage—3 lifeguards

Visual Surveillance

Since the lifeguard's first responsibility is to the swimmers in his or her area of responsibility, lifeguards need to have good visual scanning techniques. These greatly improve the chances of seeing someone who needs help. However, communication and cooperation with lifeguards in adjacent areas ensures safety throughout the facility.

The lifeguard should continually scan back and forth over the water. The guard does this slowly enough to be able to see what each swimmer is doing. Each sweep must cover the total area of responsibility. If a swimmer goes underwater, the lifeguard watches to see that the swimmer surfaces before continuing the sweep of the area. The water area directly in front of and below the lifeguard stand needs particular attention. This area is a potential blind spot for the lifeguard on the stand.

Zone Coverage

Facilities frequently divide the total swimming area into separate areas of responsibility. A section of the water area is designated for each lifeguard station, with an overlapping of zones. No lifeguard should be given responsibility for a zone that requires a scan of more than 180 degrees.

The illustrations ***(Figs. 5, 6, 7, and 8)*** show examples of zone coverage suggested for stationary lifeguard stands. They may need to be adapted for different facilities.

Some advantages of zone coverage are—

- Guards can concentrate on a limited area.
- Overlapping allows for double coverage.

Some disadvantages of zone coverage are—

- Large facilities require more zones, and therefore more staff.
- Lifeguards may be confused about their area of responsibility where zones overlap.
- Lifeguards may not scan their entire area of responsibility if boundaries are not clearly marked (lifelines, ladders, diving boards).

Some methods for dealing with these disadvantages include—

- Concentrating swimmers in a few sections so large swimming areas can be supervised more easily.
- Ensuring that lifeguards are aware of their area of responsibility.
- Establishing an effective system of communications among lifeguards.

Total Coverage

Another procedure for supervising swimmers is for one lifeguard to have responsibility for the entire swimming area. This procedure should be used only if a small number of swimmers are in the water and only one or two lifeguards are on duty. An advantage of this system is that it requires a smaller number of staff members.

However, this system also has the following disadvantages:

- Lifeguards are required to observe a larger area and may not see a problem as quickly as with zone coverage.
- Lifeguards may concentrate too much of their attention on the extreme boundaries of the area. They must be fully aware of all activity in their area of responsibility by continuously scanning the entire area.

Some suggested methods for dealing with these disadvantages are to—

- Concentrate the swimmers into a smaller area.
- Close some sections of the water area.

Back-up Coverage

In emergency situations, when there are two or more lifeguards on duty and one lifeguard must enter the water, each lifeguard who remains out of the water is responsible for supervising a larger area. The lifeguards remaining out of the water may need to move to better vantage points. This will be determined by the facility's design. The examples of back-up systems shown in ***Figures 9, 10, and 11*** may be adapted to different facilities. In each of the situations shown in the figures, the primary lifeguard leaves his or her assigned position (indicated by X) and enters the water (indicated by solid line). The back-up lifeguard then moves to a position (indicated by dotted line) that allows him or her to survey both areas of responsibility. The back-up's new position is indicated by X.

In facilities where there is only one lifeguard on duty, it may be necessary to clear all swimmers from the water in an emergency situation. This procedure is discussed in detail in Chapter 7, "Emergencies."

Sometimes it is advisable for swimmers to remain in the water during an emergency, for example, at a pool with a small deck area. In this instance, the swimmers must move to shallow water and be continually supervised. When only one lifeguard is on duty during an emergency, it may be necessary to recruit a volunteer or another staff member to supervise the facility.

Examples of communications and signal systems are discussed in Chapter 7, "Emergencies."

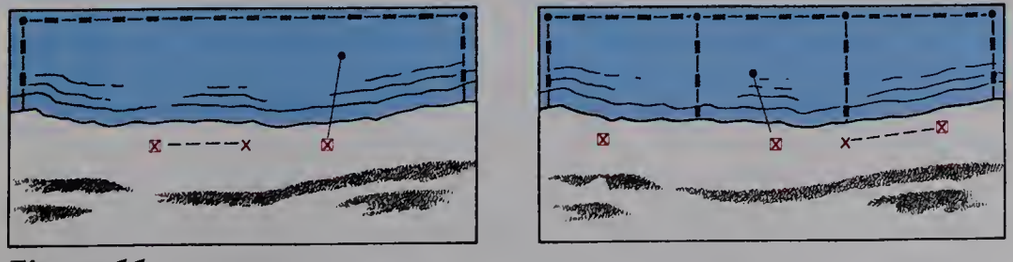


Figure 11
Example of back-up coverage

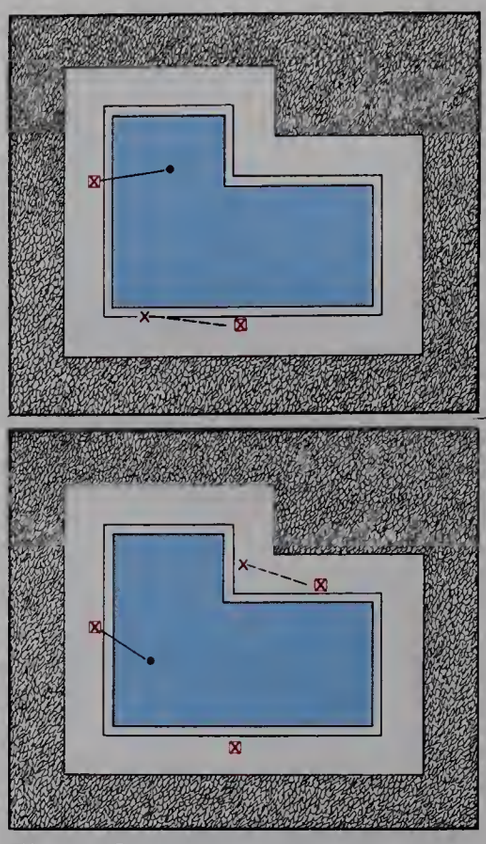


Figure 9
Example of back-up coverage in facility without a diving board

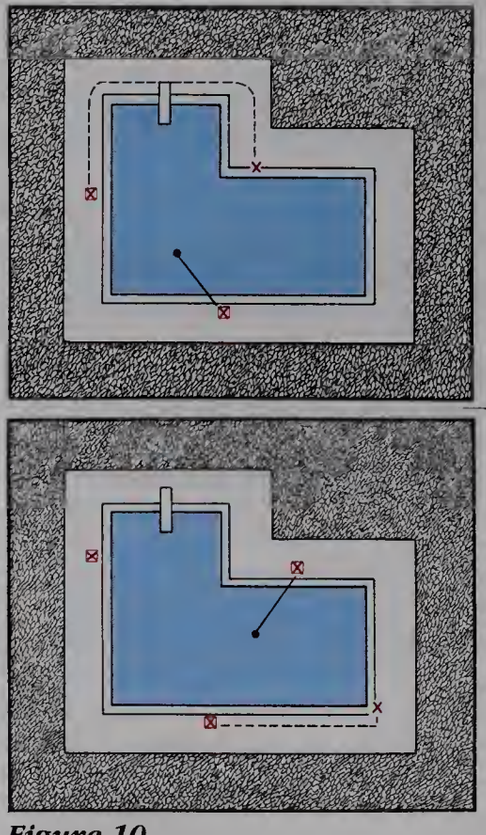


Figure 10
Example of back-up coverage in facility with a diving board

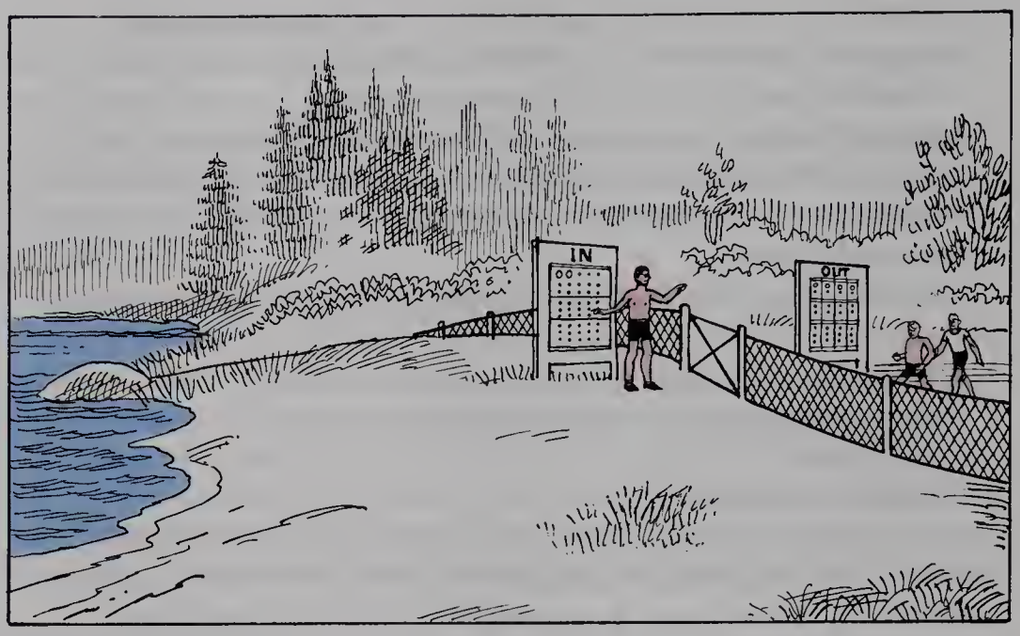


Figure 12
Buddy board location

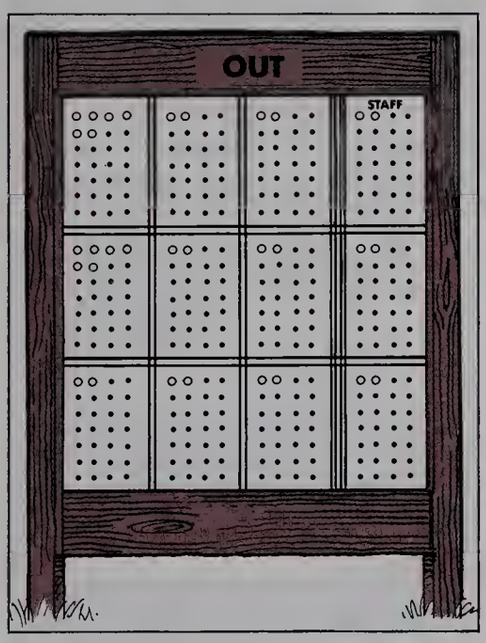


Figure 13
"Out" buddy board

Safety Checks

Lifeguards should check the facility periodically each day, especially before it opens to the public. This check includes walking around the area to make sure that no one entered the facility while it was closed and that all equipment is in working order.

When the facility is open, safety checks may be scheduled to coincide with the rotation of lifeguard positions. If there is only one lifeguard on duty, safety checks can be done on the lifeguard's break. In either case, the lifeguard signals the swimmers to clear the water and sit or stand on the deck or pool edge. Some facilities require people to move away from the edge of the pool or deck so they won't fall or be pushed into the water. After checking that all of the swimmers are out of the water, the lifeguard then may rotate to another position to supervise the area or to take a short break. The swimmers should not reenter the water until the lifeguard returns (or is in the proper position) and gives the proper signal.

Safety checks also can be used at facilities when there are large numbers of people in the water and more than one lifeguard on duty. Lifeguards should check the bottom of the swimming pool frequently for anyone who may have gone underwater unnoticed. During these safety checks, the swimmers have an opportunity to rest. This may help to prevent swimmers from becoming too tired.

The lifeguard must make a complete inspection of the facility when the facility closes at the end of each day. This inspection should include the water area, locker and shower rooms, and any adjacent areas where people may go while in the facility—for example, the small-boat area, playground area, and snack bar and eating areas. At waterfront facilities, it may be necessary to walk through the shallow-water area to ensure that no one is lying on the bottom.

After the closing inspection, the lifeguard should enter in the daily log a brief statement that the water area is clear and that all safety precautions have been taken. The statement should include the name and signature of the person making the inspection, the time of day, and the signature of a witness.

Buddy Systems

The buddy system for supervising swimmers is frequently used at camp waterfronts. Swimmers of the same ability are paired when they enter the swimming area. The buddies may be restricted to a specific area according to their swimming abilities. If two swimmers of unequal swimming level are paired up, they must stay in the area restricted to the level of the less-skilled swimmer.

On a given signal, such as a whistle blast, the buddies grasp one of each other's hands, raise their arms over their heads, and remain in place until the lifeguard can get an accurate count of the swimmers in each section of the facility. Swimmers in deep water swim to the side of the dock or raft while the count is being taken.

"Buddy boards" located at the entrance to the swimming area can be used to check swimmers in and out of the facility ***(Fig. 12).*** After taking a swimming test to determine their respective skill levels, individuals are issued name tags showing which group they are in—beginners, nonswimmers, and so on. The name tags are kept in the "out" section ***(Fig. 13)*** when the swimmers are not in the facility. As they enter the facility, they move their respective tag to the "in" section ***(Fig. 14),*** and are then paired up with a buddy. A lifeguard, or another responsible person, stationed beside the buddy board helps make sure that the tags are put in their proper positions. These boards also may be used to indicate buddies in small-boat activities ***(Fig. 15).***

Swimmers or boaters must put back all tags into the "out" section when the waterfront area is cleared of swimmers. Tags that remain in the "in" section indicate that (1) swimmers or boaters have forgotten to move their tags to the "out" section or (2) a swimmer or boater may be missing. Each facility must develop procedures to handle these situations quickly and efficiently. At waterfront facilities where the small-boat area is located some distance from the swimming area, separate "in" and "out" boards may be required for both areas.

Another type of buddy board has numbered tags that are red on one side and white on the other. Each swimmer or boater is assigned a number and issued the corresponding tag. The master roster of these numbers and names is kept at the facility or camp waterfront area. When the swimmer or boater leaves the waterfront area, the tag is placed in the "out" section, with the white side showing. When the swimmer or boater returns to the waterfront area, he or she turns the tag to the red side and moves it to the "in" section of the board.

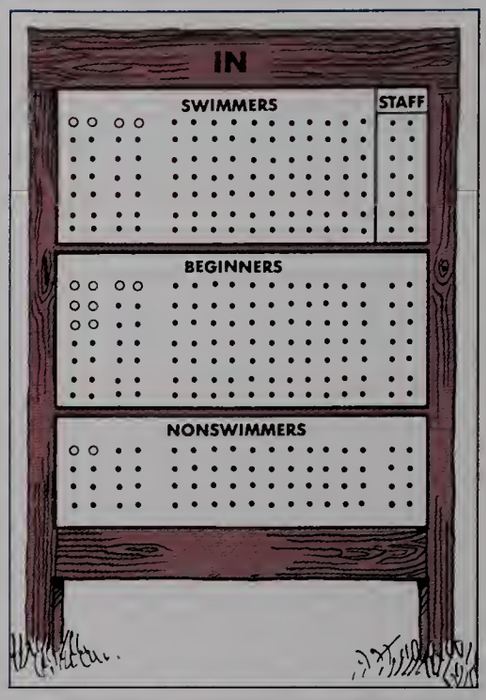


Figure 14
"In" buddy board

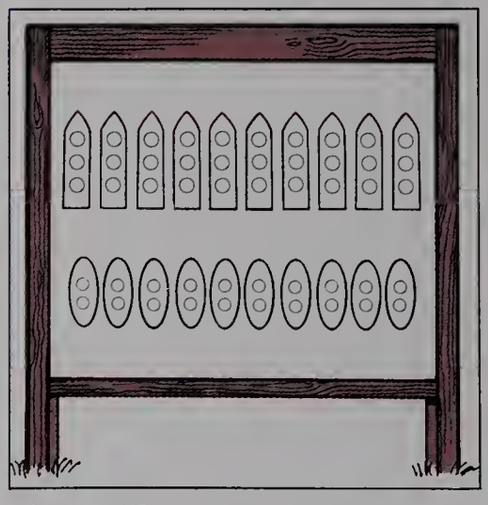


Figure 15
Small-boat activity buddy board

In another type of buddy system sequential numbers are assigned to pairs of swimmers. During a safety check, the pairs count off in numerical sequence. Another method of supervising swimmers at camp waterfront areas is to require swimmers to wear swimming caps of different colors. Each color shows the wearer's swimming ability, for example, red for nonswimmers, white for beginners, and blue for swimmers. Campers may also be required to wear caps so they can be seen easily when they are in the small-boat area.

Lifeguard Stations

People in an aquatic facility may be supervised either from the deck, the beach, or the water. The object is to provide optimum coverage for the whole facility.

Lifeguard stands should be located where lifeguards can observe easily and react quickly to any situation in their area of responsibility. These stands or chairs are for the use of lifeguards only. They may not be used as gymnastic or diving equipment or as storage areas for the personal items of swimmers or lifeguards. Food, drinks, and radios should be kept off the lifeguard stands. Lifeguards should ask people politely to keep the area around the stand clear at all times, especially the area in front of the stand.

Location

Some of the factors used for determining the location of lifeguard stations are the—

- Size and shape of the facility.
- Depth of the water.
- Number of users in the facility.
- Movement of the sun and wind.
- Condition (clarity) of the water.
- Size of the deck or dock area surrounding the water.
- Type of activity, for example, recreational swimming, swimming lessons, diving.

These factors may not apply to all facilities and some may have different conditions that affect the location of the lifeguard stations. Each facility should establish a system of coverage that places the lifeguards where they can provide maximum safety for the facility users.

Elevated Stations

Elevated stations, such as towers, stands, or chairs, usually provide lifeguards with a better vantage point from which to scan their area of responsibility. In facilities that have large open-water areas, lifeguards may need to use binoculars. In camp facilities, the person in the elevated station acts as a lookout or observer and directs lifeguards on the ground to swimmers who need assistance.

The area directly in front of an elevated station must be kept clear at all times. Some facilities require their lifeguards to climb down rather than jump. The safety of the lifeguards in getting up and down from the stand in an emergency must be considered because of a hard surface beneath the chair or because the chair is located near shallow water.

Rescue equipment kept on or near an elevated stand should be placed where it is ready for use and will not interfere with the lifeguard's getting up or down from the stand, especially in an emergency situation.

Further information on lifeguard stands and chairs is in Chapter 6, "Equipment."

Ground-Level Stations

Some small facilities may not have elevated stations—all the lifeguards are stationed at ground or deck level. These lifeguards may be assigned to specific areas (stationary) or they may be required to move around the area (roving). Roving lifeguards may be needed where there is a large concentration of swimmers or where water depth suddenly changes, such as at the shallow-water end of a wave pool or the receiving pool at the end of a speed slide or water flume.

Roving lifeguards should always carry with them a piece of rescue equipment, such as a rescue tube or reaching pole. Stationary lifeguards should always keep a piece of rescue equipment at the guard station.

An advantage to placing lifeguards at ground level is that they are close to swimmers. This allows disciplinary actions to be more quiet and effective, since the lifeguards may not have to shout or blow a whistle to attract a swimmer's attention. However, this advantage is usually outweighed by the advantages of having the lifeguards in elevated stations.

Boat Stations

In open-water areas, such as camps or parks, it may be necessary to station one or two lifeguards in a boat at the outer edges of the swimming area. The boat should not enter the swimming area except in an emergency. The lifeguards can easily patrol the deep water in a boat and be in a position to help swimmers more quickly than lifeguards who are stationed on the shore.

In addition to rescue equipment such as a rescue tube, first aid equipment such as a first aid kit or resuscitator may be carried in a boat. This allows the lifeguard to begin first aid procedures immediately, if necessary. Procedures for boat rescues are discussed in Chapter 16, "Waterfront Areas."

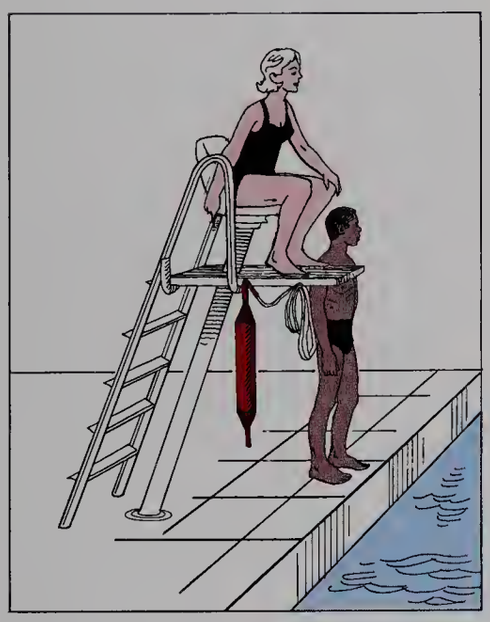


Figure 16
Incoming lifeguard (standing); outgoing lifeguard (sitting)

Rotating and Relieving Lifeguards

Lifeguards who sit or stand at the same station for a long time can easily become physically and mentally tired. Periodic rotations from one station to another, plus relief breaks, should be scheduled to keep lifeguards alert. Rotating the lifeguards also allows them to become familiar with the conditions and hazards in the total facility, rather than in just one location. For example, at some facilities, the sun glare from the water may prohibit the use of a specific stand during certain times of the day.

Rotation and Break Systems

The head lifeguard or manager needs to schedule rotations for lifeguards at set times. The schedule should be flexible enough to allow for any changes that become necessary because the number of swimmers suddenly increases or decreases.

The amount of time a lifeguard spends on duty and on a break can vary, but breaks should occur at least once an hour. In one system, a guard spends 20 or 30 minutes at one station, rotates to another station for 20 or 30 minutes, and then has a 20- or 30-minute break. In another system, a guard spends 45 minutes at one stand, has a break for 15 minutes, and then goes to another stand. Methods of rotating the guards may vary with the number on duty. One method is to have a lifeguard on a break (Guard A) relieve one who is on duty (Guard B). Guard B then rotates to the next station and relieves the lifeguard there (Guard C). This process continues around the facility to the last station. The lifeguard who is relieved at the last station then goes on a break or to whatever other duties are required. Another method is to rotate all the guards simultaneously, while they continue to observe the water.

Breaks

All lifeguards must be aware of the schedule and should not make changes or substitutions without the consent of the head lifeguard or the manager. Lifeguards should not leave the facility during a break without telling the head lifeguard or the manager where they are going and when they will return.

At facilities where there is only one lifeguard on duty, the water must be cleared while the lifeguard takes a short break. Swimmers should not be left in charge of the facility while the lifeguard is on a break.

Procedures for Relieving Lifeguards

There must be no break or delay in the supervision of the areas of responsibility during the rotation of the lifeguards. At a ground-level station, the new lifeguard walks to the side of the lifeguard who is being relieved.

At an elevated station, one procedure for relieving a lifeguard is—

- The incoming lifeguard takes a position next to the stand and observes the area of responsibility for that stand ***(Fig. 16).*** When the incoming lifeguard has scanned the area and is aware of the ongoing activity, the new lifeguard signals the lifeguard in the stand, who can then climb down.
- Once on the deck, the outgoing lifeguard takes a position next to the stand, scans the area ***(Fig. 17),*** and then signals the incoming lifeguard to get up in the stand. The incoming lifeguard is in charge of the area after climbing up in the stand and scanning the area. The incoming lifeguard then signals that the outgoing lifeguard can leave ***(Fig. 18).*** The outgoing lifeguard continues to observe the activity in the water and on the deck while going to the next station or to the guard room. Some facilities require lifeguards to circle the facility before going on a break. This allows for periodic checks of areas at the far boundaries of an area of responsibility.

In a procedure for relieving boat stations, one rescue boat remains on station until the second boat arrives and takes over the observation of the area. If only one boat is being used, the relief must be coordinated with other lifeguards. The relief can be made during a safety check when all swimmers are out of the water, or the lifeguard at the closest station can scan the area until the new boat crew arrives.

Lifeguard rotation presents a good opportunity to exchange information such as changes in orders or special instructions.

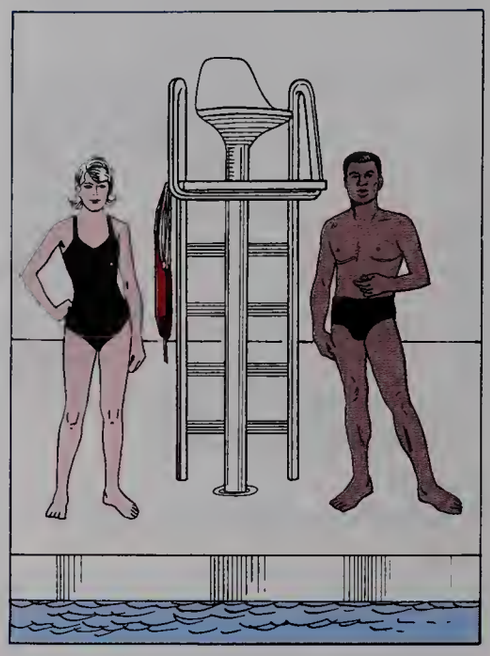


Figure 17
Outgoing lifeguard scans the area

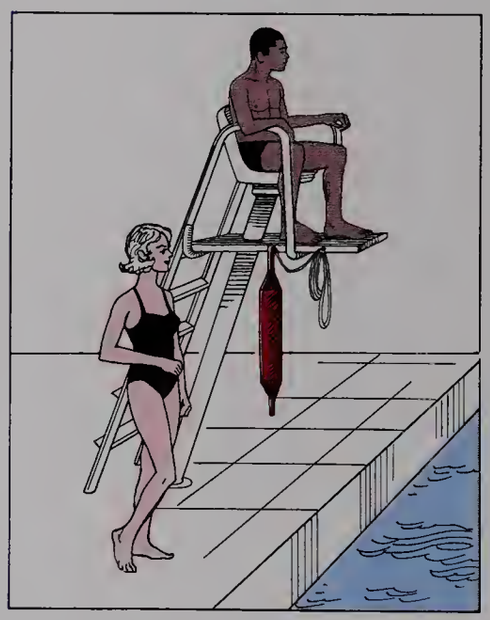


Figure 18
Outgoing lifeguard (standing); incoming lifeguard (sitting)

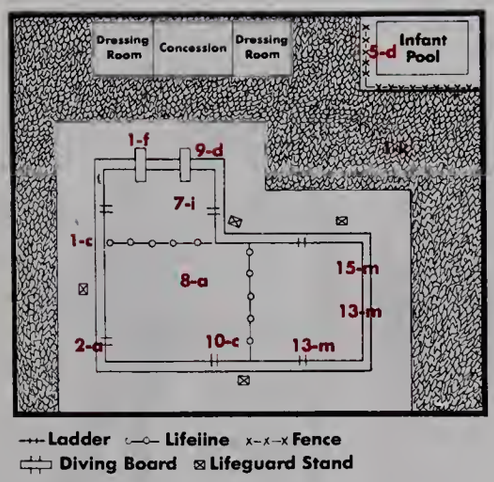


Figure 19
Suggested incident and injury chart

Incident and Injury Chart

A key to effective preventive lifeguarding is knowing where and how emergencies or injuries may happen and then eliminating or minimizing any dangerous or potentially dangerous conditions. All lifeguards should have a thorough knowledge of the facility and its hazards. A method of gathering this information is to maintain an incident and injury chart or a diagram of the facility on which to record the locations and types of all injuries and incidents.

The diagram should show all pieces of equipment, such as lifeguard stands, lifelines, ladders, and diving boards. Fences and deck and grass areas also should be shown. Whenever there is an incident or injury, it should be coded as discussed below and posted on the chart ***(Fig. 19)***. By recording all incidents and injuries, their frequency and locations, it is possible to determine the causes and effects of the different types. Actions then can be taken to perform necessary maintenance, to install safety equipment, to place extra lifeguards on duty, or to reassign lifeguards for better supervision.

Suggested Incident and Injury Chart

All staff members must be familiar with the codes that are used at their facility to indicate incidents and injuries. Any combination of codes can be used to describe an injury or an incident. Each occurrence should be marked on the chart. The following are examples of codes that may be adapted to different facilities:

Cause		Injury	
1.	Fall	a.	No injury
2.	Running	b.	Bruise
3.	Slipped	c.	Abrasion
4.	Tripped	d.	Cut
5.	Pushed	e.	Dislocation
6.	Stepped on	f.	Fracture
7.	Hit	g.	Burn
8.	Tired swimmer	h.	Drowning
9.	Diving board	i.	To head
10.	Ladder	j.	To arm
11.	Slide	k.	To leg
12.	Steps	l.	To body
13.	Diving from deck	m.	Spinal
14.	Diving from starting blocks		
15.	Diving into shallow water		

Contour Depth Line

Many injuries occur at an aquatic facility because the victim does not have enough information about the facility's features. A common example is not knowing the depth of the water. Children may jump into water over their head and may not be able to get back to safety. Others may dive from the edge of the pool or the dock into shallow water and strike their head on the bottom. Either of these actions could result in serious injury or death to the victim.

Injuries like these often can be avoided when proper warnings about water depths are posted. Some facilities use signs. Others use depth markings on the deck. However, many people, particularly children, aren't sure how deep 5 feet of water really is in relation to their own height. Because of this, many facilities use a contour depth line ***(Fig. 20)*** which offers a quick way to show just how deep the water is.

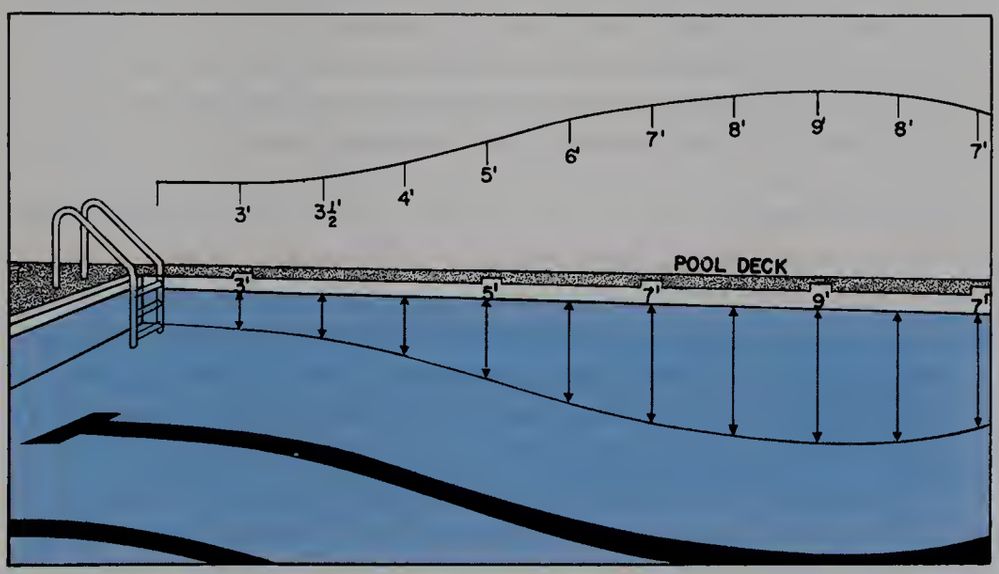


Figure 20
Contour Depth Line

A line is drawn or painted on a wall or fence parallel and relatively close to the side of the pool. The line is marked to show the depth of the water directly in front of the wall. People can stand in front of the wall at any given place on the line and know immediately how deep the water is in relation to their own height.

A contour depth line can be made easily. Starting at the shallow end of the pool, a pole or some other measuring device is placed in the water. The depth of the water is marked on the pole. The pole then is placed next to the wall directly in line with the point where the water depth was measured, and a mark is made on the wall. This process is repeated every 2 feet along the entire length of the pool. All of the depth marks on the wall are then joined with one continuous line of paint or waterproof tape. Depth numbers can be placed on the wall that correspond to depth number markings that may be on a pool deck, for example, 3 feet, 5 feet, 7 feet.

Another method of making a contour depth line at outdoor facilities is to weave a colored rope through a wire fence in a manner that will show the depths.

Depths of less than 5 feet should be marked "Danger—Shallow Water—No Diving." These depth markers should have red or black letters and numerals, 4 inches high or higher, on a white background. Check local ordinances regarding the requirements for these markings.

If there is no wall or fence that runs the entire length of a pool, a scale drawing on a smaller wall or fence can show the depths, or the depths can be marked on a pole.

Potential Hazards

Certain hazardous areas are common to all aquatic facilities; others are peculiar to individual facilities. Preventive lifeguarding requires identifying these areas, minimizing or eliminating the hazards if possible, helping facility users to avoid hazardous areas, and constantly providing supervision of these areas. The hazardous areas common to many facilities are discussed below.

Entrance Areas

Facility users rushing to the water may be pushed and fall or may slip on wet surfaces and fall. If an entrance is near the deep end of the facility, nonswimmers or weak swimmers may jump or dive into water that is over their head. If the entrance is near the shallow end, swimmers may jump or dive into water that is too shallow.

Warning signs should be posted at these entrance areas. The signs should indicate wet, slippery areas and different water depths and caution users about the dangerous consequences of running and diving.

Deck, Beach Areas, and Docks

Running is a common cause of injury on pool decks, at beach areas, and on docks. People who run, usually small children, can be injured by falling or by running into someone else. Facility users must be cautioned about running, and the "walk only" rule must be strictly enforced.

Docks and decks at outdoor facilities may be slippery when wet. They should be coated with a nonslip material. Uneven boards that allow a person to catch a foot or toe should be replaced. Splinters and exposed nails or bolts also can cause injury. These should be removed or covered.

Beach areas should be clear of any glass or other objects that may injure people.

Ladders and Steps

Ladders and steps tend to be gathering places for swimmers. Swimmers should not be allowed to play or gather around ladders or steps because the areas are potentially dangerous. Weak swimmers or nonswimmers may be pushed into water over their heads. Swimmers may become caught in the rungs or between the ladder and the wall. Wooden ladders may be rotten or have exposed nails. Steps may be slippery and may be chipped. To help keep these areas as safe as possible, all necessary repairs to ladders and steps must be made as quickly as possible.

Shallow-Water Areas

The major dangers in shallow-water areas are diving from the deck or dock and pushing weak swimmers or nonswimmers. Facility users, especially children, should be cautioned about horseplay in the water or on the deck. There should be no diving into shallow water. Doing so can result in cuts, injured fingers or hands, and severe neck and back injuries. Diving from the deck or dock should not be permitted in water that is less than 5 feet deep. Water depths should be clearly marked. Facility users should be made aware of these depths and of changes in depths. Deep-water swimming areas should be outlined with buoyed lifelines that are stretched tight enough to support an adult with his or her head above the water.

Between Deep- and Shallow-Water Areas

Weak swimmers and nonswimmers can misjudge water depths or the distance back to standing-depth water and find themselves in trouble. Lifeguards need to watch for swimmers who do not let go of the side of the pool or dock or who go too far from safety. These people should be sent back to shallow water. Swimmers should be warned of any "step-offs" where the bottom dips sharply from shallow to deep water. Lifeguards working at open-water areas must be alert to changes in the water depth due to storms, evaporation, or release of water from dams. Buoyed lifelines need to separate shallow water from deep water and indicate depth changes to swimmers. These should be stretched tightly enough to support an adult with his or her head above the water.

Overflow Troughs and Safety Ledges

Overflow troughs (gutters) and safety ledges are hazardous to swimmers who use them to work their way from shallow water to deeper water. Weak swimmers and nonswimmers who use the troughs or ledges this way should be sent back to shallow water. The design of some overflow troughs allows young swimmers to catch an arm or leg in the trough when they attempt to climb out of the pool. Swimmers should be advised to use only a ladder or steps to climb out of the water.

Safety ledges may be dangerous to swimmers who dive or jump into swimming pools, as contact with them can cause serious injury.

Deep-Water Areas

A constant danger in deep water is that poor swimmers may misjudge the depth or their own skill level. If there is doubt about a person's swimming ability, lifeguards need to caution that person and, if possible, give the person a swim test before allowing him or her into deep water. A swim test may require the individual to swim a specific distance, such as 10 or 15 yards. This may not be possible in facilities where there are large numbers of swimmers. In such situations, lifeguards will have to use their own judgment.

Underwater Swimming

Underwater swimmers may be injured by being jumped or dived on by another person, especially in lakes where the water is not clear or in congested pools. Another danger is "shallow-water blackout," which is the result of swimmers holding their breath while swimming underwater for a long period of time. This condition can occur in any depth of water when swimmers inhale and exhale deeply, fairly rapidly, and repeatedly (hyperventilate) before submerging in order to hold their breath longer. Distance and speed underwater swimming should not be encouraged.

Diving Boards and Towers

Serious injuries can occur from the improper use of diving boards and towers. Lifeguards must be aware of the kinds and causes of these injuries and the ways to prevent them. Guards should be especially alert to poor swimmers or very young swimmers who attempt to use diving boards or towers. Have poor swimmers prove their ability to swim safely in deep water before allowing them to use diving equipment.

Many divers, especially children, jump rather than dive from a board. They should be instructed to swim out of the way of the next diver as soon as possible, and the next diver should not be allowed onto the board until the impact area is cleared. Divers should not be allowed to swim around underwater in the diving area before surfacing. Diving from the side of a board or tower is

extremely hazardous. It should not be permitted. The diver may strike another diving board, the side of the pool, or a person in the water.

Rules about the use of diving boards and diving towers should be placed near the boards and towers and must be strictly enforced. Examples of these rules are—

- Divers must use the ladder to mount the diving board or tower. Mounting in any other way is prohibited.
- Only one bounce on the end of the board is allowed.
- Only one person is allowed on the board at a time.
- Diving or jumping must be done in a straight line out from the end of the board or tower.
- Diving or jumping from the side of the board or tower is prohibited.
- Individuals must look before diving or jumping to make sure no swimmer or previous diver is in the diving area.
- People must swim to the designated ladder or wall immediately after diving or jumping.
- The diver's hands must enter the water first during head-entry dives.
- Handstands on the tower are prohibited except under a coach's supervision.
- Only under supervision should divers attempt twisting, somersaulting, inward, and reverse dives.

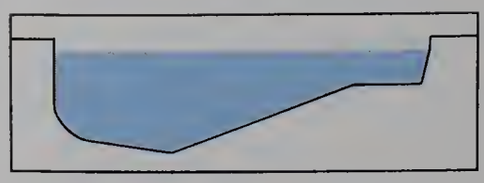


Figure 21
Slope of pool—deep to shallow

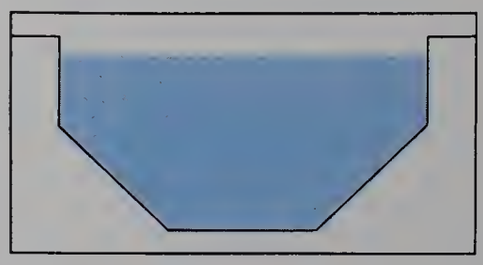


Figure 22
Slope of pool—hopper bottom

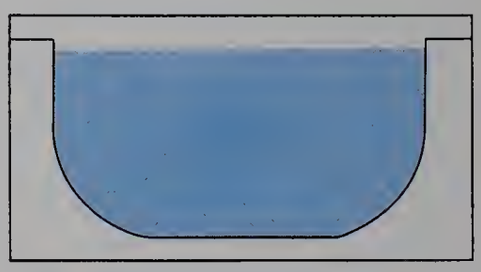


Figure 23
Slope of pool—spoon bottom

Lifeguards must be aware of and eliminate potential hazards that can result in diving injuries. Swimmers must not dive or jump from the side of a pool into the diving area. Such a swimmer may be struck by a person leaving the diving board or vice versa. Swimmers must not be allowed in the diving area. Divers must not run on the diving board or be allowed to attempt to dive long distances through the air if there is the slightest chance that they will—

- Strike the slope of the pool that rises from the deep section to the shallow section. Striking the slope can cause serious neck and back injuries. These slopes are also found under the board and along the side ***(Figs. 21, 22, and 23).***
- Strike the floating line marking the boundary of the diving area.
- Strike a swimmer who is supposedly outside the diving area.

Blind Spots

Blind spots are areas that cannot be seen or are difficult to see from a lifeguard station. Such areas can result from the layout of the facility, the improper location of lifeguard stands, or the position of the sun or indoor lighting in relation to the position of the guards. Relocate guard stations or provide roving guards to give proper supervision of blind spots, especially of the water area directly in front of and below the lifeguard stands.

Diving Boards and Mounts

All diving mounts should include two safety rails running from the rear of the mount and extending at least to the water's edge. Diving boards should extend 6 feet out over the water.

At the beginning of each season, the head lifeguard or manager should test the surface of all diving boards while they are wet to be sure they are not slippery. Diving boards should always be checked while they are wet. The surface of the boards must be cleaned regularly to prevent them from becoming slippery. The boards should also be checked periodically throughout each day. All lifeguards whose responsibilities include a diving area should be instructed to test the surface of the board(s) at the beginning of their shift.

Slides

The hazards of slides in the swimming areas are similar to those of diving boards. Rules about the use of slides should be posted next to the slides or on the ladder of the slides. These rules should consider the height, location, and shape of the slides, and the depth and turbidity of the water where the slides are located.

Slides should be located where the water is at least 9 feet deep at the impact area. Permit sliding in the **sitting position only**. Headfirst entries into shallow water from the kneeling or prone position may cause the sliders to strike the bottom with their head and **should not be permitted.**

Weak swimmers and nonswimmers are more likely to use slides than diving boards. Lifeguards must be particularly alert to these individuals.

Starting Blocks

Only competitive swimmers who are supervised by a coach should be allowed to dive from starting blocks. Starting blocks should be used only during swim team practices or swim meets and should be placed at the deep end of the pool, if possible. They should be removed when not in use, if possible. However, if the blocks cannot be removed, warning signs should be posted near them and they should be supervised by a lifeguard to prevent unauthorized use.

Floats and Docks

Floats (rafts) and docks can present several danger areas. One lifeguard may be unable to guard all sides of a float or dock properly. Swimming to a float can present a challenge to weak swimmers. Floats and floating docks may tip when overloaded, causing swimmers to fall into the water. Swimmers may be trapped while trying to swim under floats and docks.

Floats and floating docks should be anchored securely to the bottom. In order to be stable in the water, they may need additional anchoring if they have diving boards or diving platforms on them. Platforms should be inspected daily, especially the depth under the diving board, which can change with changes in the bottom configuration. If the float material deteriorates, the platform can become unstable. All floats should be stable enough to prevent tipping when occupied by their maximum safe load of users. Floats that tip or shift direction can cause serious injuries to divers.

Swimmers should show evidence of good swimming ability before being allowed to swim out to floats. The maximum number of swimmers allowed at any one time on floats and docks should be established and enforced. **No one should be allowed to swim under floats and docks.** A lifeguard should be stationed on the float.

Chemical Storage

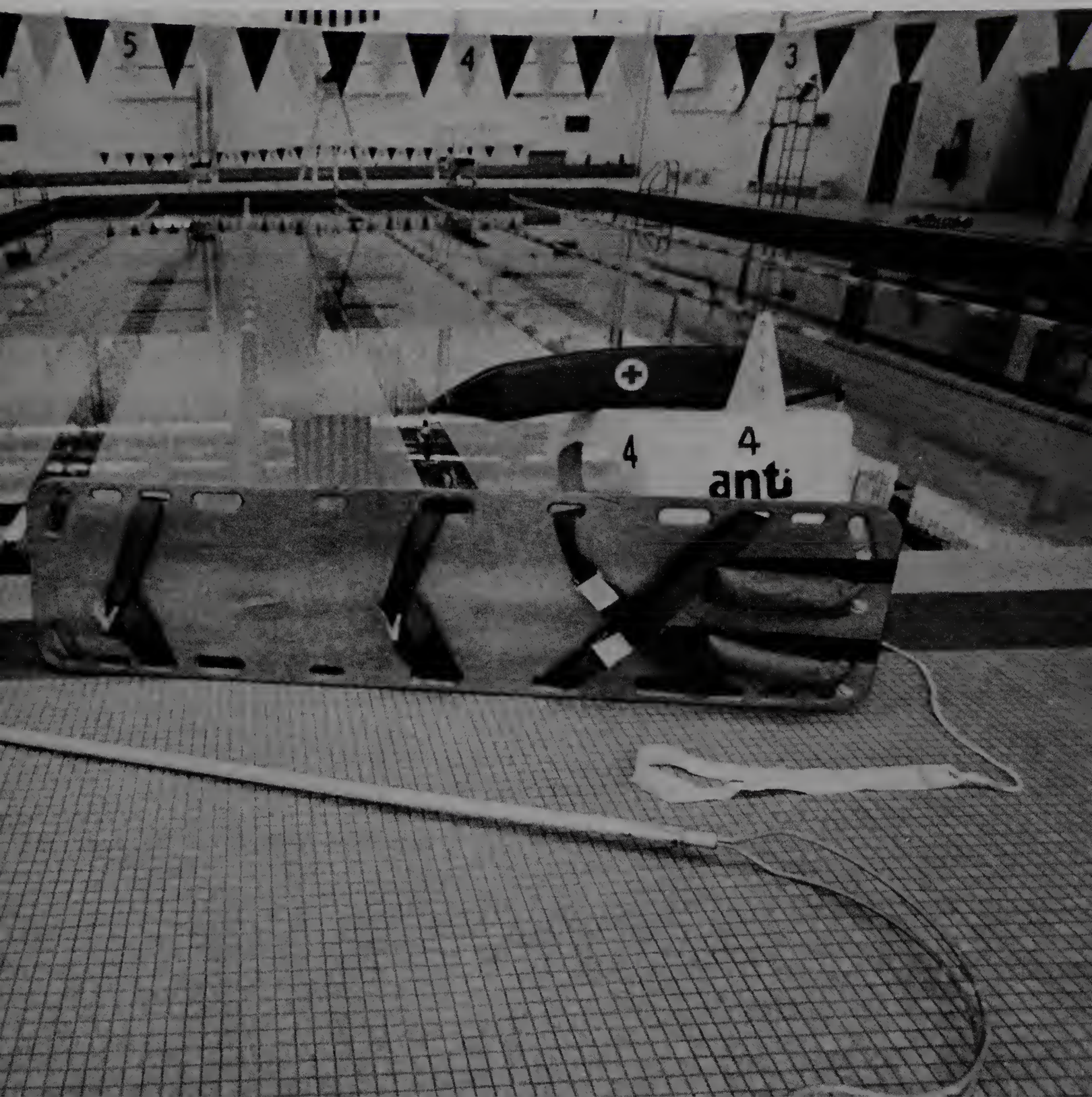
Areas of a facility that contain filtration and chlorination systems or that are used to store chemicals or maintenance equipment should be clearly identified with warning signs, and access should be restricted to authorized personnel.

Other Aquatic Facility Hazards

Covers (plates) for drain holes in deep- and shallow-water sections of swimming and wading pools must be firmly secured. This will prevent a swimmer's hands or feet from becoming trapped in the holes. Wading pool drains should be checked frequently for extremes in suction forces. Small children can be seriously injured by these forces. At open-water facilities, all swimming areas should be located a safe distance from the intake points or the spillways of dams. The intake openings for water flumes and slides can cause serious injuries.

6 Equipment

66 Personal Equipment
67 Safety and Lifeguarding Equipment
68 Rescue Equipment
76 Search and Recovery Equipment



An aquatic facility is responsible for providing the necessary safety and rescue equipment, which may include personal uniform equipment for lifeguards. The types and amounts of equipment are determined by the number of lifeguards employed, the size and type of the facility, and the facility's budget. Since the primary concern of the lifeguard is the safety of the facility users, the lifeguards are responsible for ensuring that the equipment is in good condition and readily available at all times. A daily check of the equipment for necessary repairs or replacement should be made before the facility opens. Any questionable item should be reported to the facility management and replaced, repaired, or removed. A facility must not operate without a minimum of safety equipment. Minimum standards for equipment may be established by local and state ordinances. Arrangements must be made to replace equipment and materials used during emergencies, such as a backboard or first aid materials.

Safety and rescue equipment have become standardized over the years. Not all of the equipment described in this chapter will be necessary for all facilities. Further information on the use of specific equipment is given in Chapter 9, "Rescues," and Chapter 11, "Search and Recovery Operations."

Personal Equipment

Many facilities require the lifeguards to wear a uniform. Some employers provide all or part of the uniform. The uniform should be kept neat and clean at all times and should be worn in the prescribed manner and only while on duty. A uniform may consist of the following items:

- Swimsuit—A nylon swimsuit is ideal, since it dries quickly. Its color should be highly visible.
- Shirt—A shirt may be either a special T-shirt or a blouse that does not restrict movement, provides protection from the weather, and easily identifies the lifeguard.
- Jacket—A jacket provides identification and protection from the weather at an outdoor facility. A light windbreaker also may be worn at an indoor facility. A jacket should be easy to remove in an emergency.
- Hat—A hat provides protection from the sun for the head and face.
- Foul-weather gear—This gear may be necessary in areas with certain weather conditions.
- Whistle—A small whistle should be available for instant use.
- Sunglasses—Sunglasses should be of good quality, should be designed to filter out ultraviolet rays, and should not reduce vision.

- Shoes—Tennis shoes or sandals should be worn to protect the lifeguard's feet.

Other equipment may include the following items:

- Binoculars—Binoculars are very useful on beaches where there are large areas of responsibility.
- Blanket—A blanket can be used to cover the lifeguard's legs for warmth and can be used to cover or shade a victim after rescue.
- Sunscreen lotion—As a precaution against overexposure to the sun, lifeguards should use a sunscreen or sunblock.

The lifeguard on duty should not wear jewelry, such as earrings, bracelets, necklaces, chains, and pins, because it can injure the lifeguard or the victim during a rescue.

Safety and Lifeguarding Equipment

All aquatic facilities should supply—

- **Lifelines**—Lifelines are buoyed lines that mark and separate swimming and diving areas ***(Fig. 24).*** They help to prevent accidents by restricting activities to designated areas. They also can provide temporary support to a distressed victim. They should be stretched tightly enough to support an adult with his or her head above the water.

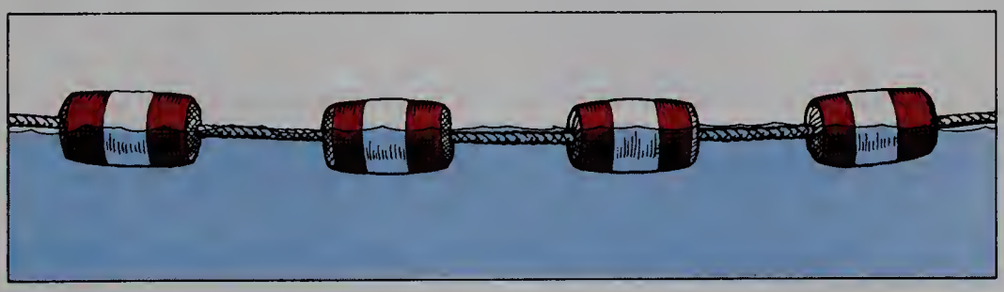


Figure 24
Lifeline

- **Lifeguard stands**—Lifeguard stands provide vantage points for lifeguards supervising swimmers. They can be stationary or movable. Chairs must be located so that the lifeguard can see over the edge of the pool immediately in front of the chair. Types and sizes of stands vary with facilities. Some standard features include—
  - An elevated seat above the level of the ground or deck. On larger beaches, the seat may be higher above the level of the beach.
  - Footrests and backrests. Straight-backed chairs help to prevent the lifeguard from slouching.
  - Some provision for shade and shelter for the lifeguard, such as an umbrella or a canopy.

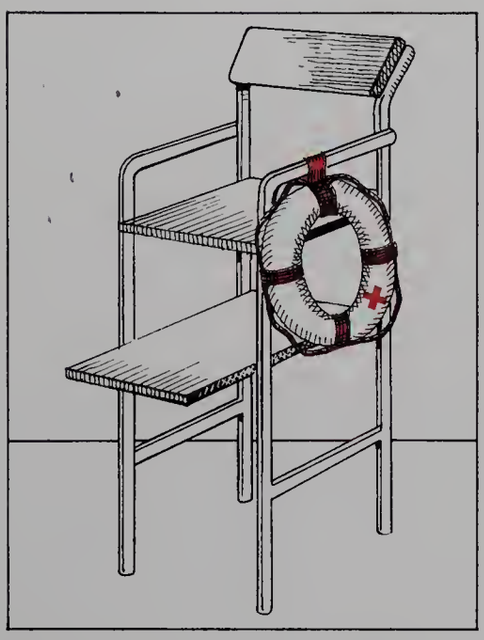


Figure 25
Wooden lifeguard stand

- A hook, stand, or supports for rescue equipment to allow the lifeguard to store and reach the equipment easily.
- A place for first aid and communication equipment.

At lakes and nonsurf beaches, the stand may be wooden and can be attached to the dock or sometimes be anchored in the water ***(Fig. 25)***. At swimming pools many lifeguard stands are constructed of galvanized pipe or stainless steel and are anchored to the deck ***(Fig. 26)***. A movable stand or chair at beaches or pools allows the lifeguard to move in order, for example, to go to an area that has a larger concentration of swimmers, to observe a special class, or to improve the lifeguard's vision when the sun shifts ***(Fig. 27)***.

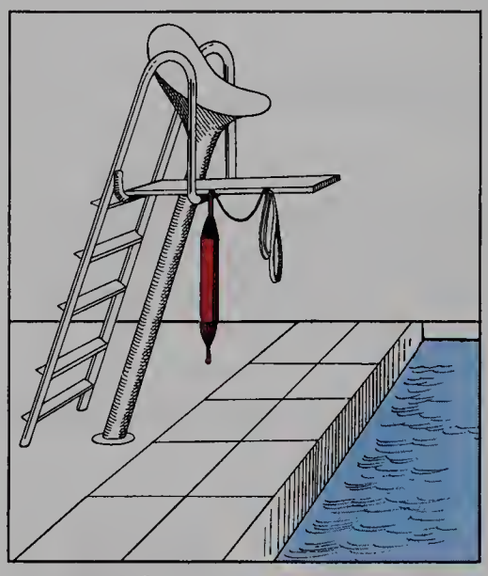


Figure 26
Metal lifeguard stand

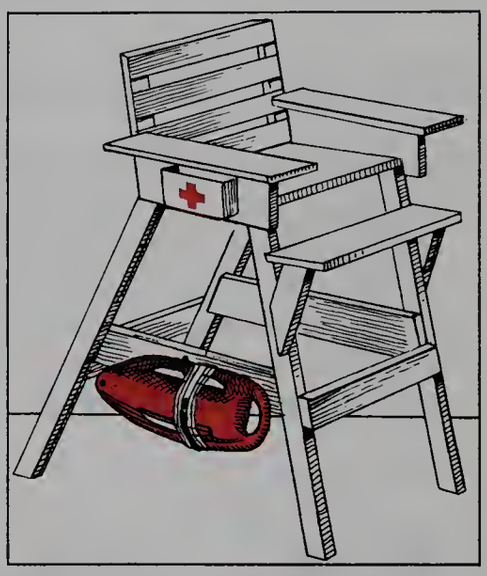


Figure 27
Movable lifeguard stand

Rescue Equipment

The various rescue equipment lifeguards can use to assist a person in a distress or drowning situation is discussed below. Remember that equipment that is extended or thrown to a victim can be used only if the victim will be aware of its presence and will have enough self-control to grab it.

- **Reaching pole**—A reaching pole ***(Fig. 28)*** is used mainly at pools and camp waterfronts. Reaching poles should be approximately 10 to 15 feet long. They are usually made of bamboo, aluminum, or fiberglass. See Chapter 9, "Rescues," page 113, for a description of how to use a reaching pole.

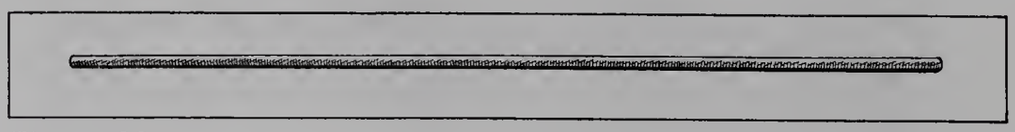


Figure 28
Reaching pole

- **Shepherd's crook**—A shepherd's crook ***(Fig. 29)*** is a long, light, aluminum pole with a blunted hook large enough to encircle a person's body. It is usually hung on a rack or on hooks at a convenient location at a swimming pool. See Chapter 9, "Rescues," page 115, for a description of how to use a shepherd's crook.

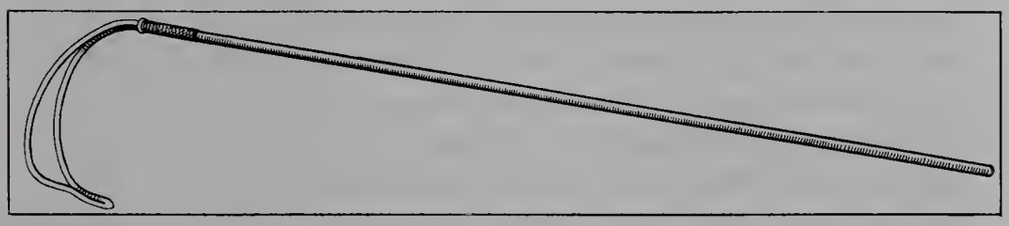


Figure 29
Shepherd's crook

- **Heaving line**—A heaving line is a coiled length of line that can be hung conveniently near swimming areas. The line makes an excellent rescue device for active victims ***(Fig. 30).*** Before you throw the line, secure it by stepping on one end of it with your forward foot. Hang the coiled line over the open palm of the nonthrowing hand, and extend this hand forward at waist level. The coil should be split so that about half of the coil is in each hand. This gives the coil in the throwing hand sufficient weight so that it can be thrown with some accuracy.

  Throw the coil with an underhand motion. Keep the palm of the nonthrowing hand open to allow the coil to run freely. The extended line should fall just beyond the victim and within reach of the victim's outstretched hands.

  A heaving line can be thrown with better accuracy if a small amount of weight is added. The weight should be attached to the end that is thrown and preferably should be buoyant.

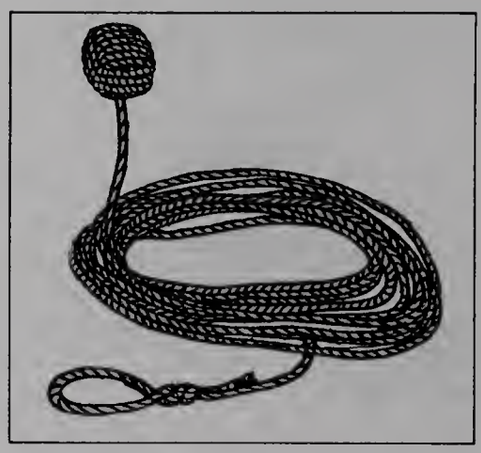


Figure 30
Heaving line

- **Ring buoy with line**—A ring buoy with line attached is a valuable piece of rescue equipment for active victims. The ring buoy should weigh about 2 pounds and be made of a buoyant material such as cork, kapok, foam rubber, or hard solid plastic. Fifty feet of 1/4-inch manila or polypropylene line should be attached to the ring. A wooden or plastic "lemon" on the other end of the line keeps it afloat in case it gets thrown or pulled into the water and keeps it from slipping out from under your foot when you throw the buoy ***(Fig. 31).*** The ring buoy should be hung where it will not be blown off its hook and be positioned at a height where a rescuer easily can seize both it and the coil of line hung directly below. See Chapter 9, "Rescues," page 116, for a description of how to use a ring buoy.

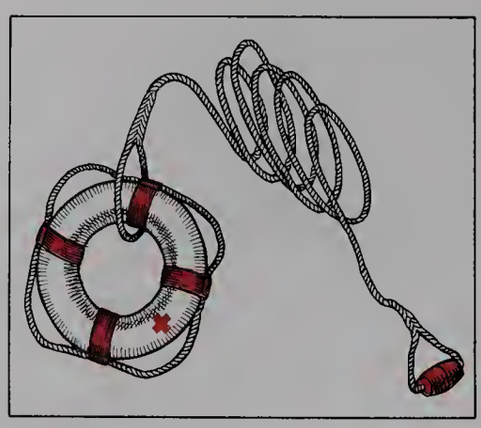


Figure 31
Ring buoy with line and "lemon"

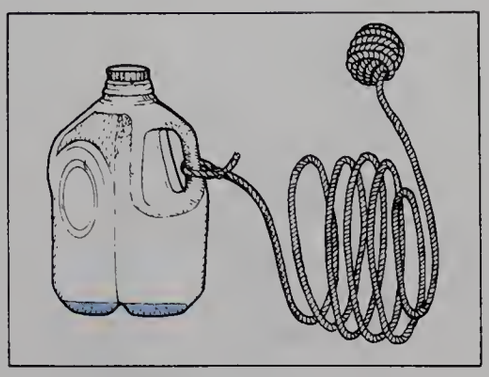


Figure 32
Heaving jug

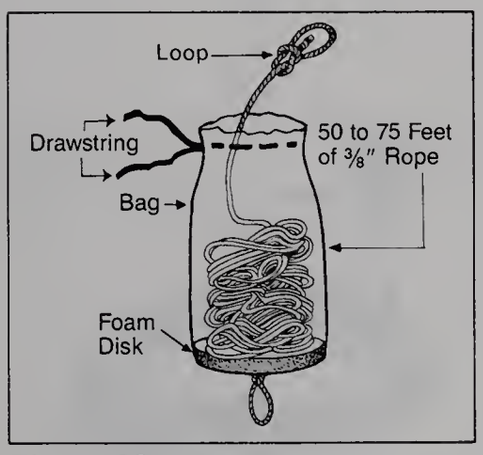


Figure 33
Throw bag

- **Heaving jug**—A heaving jug is a suitable piece of rescue equipment for home pools. It can be made from a gallon plastic jug containing about an inch of water. Close and tape the top shut, then attach 50 feet of 1/4-inch manila or polypropylene line to the handle ***(Fig. 32).*** The container and coil of line then can be hung conveniently in place at the swimming pool. Before throwing the equipment, secure the line by placing your forward foot on the line near the unattached end. Hang the coil of line over the open palm of the nonthrowing hand, and make the throw by grasping the handle of the jug and releasing it at the forward end of the swing. Throw beyond the victim but just within reach. After the victim gets a firm grasp on the buoyant jug, he or she can be pulled in. Care should be taken to pull fast enough to keep the victim's head above water but smoothly enough that the jug is not jerked from the victim's grasp.
- **Throw bag**—A throw bag is a nylon bag containing from 50 to 75 feet of line that floats. A foam disk at the bottom of the bag gives the bag its shape and prevents it from sinking ***(Fig. 33).*** For the initial throw, first ensure that the drawstring at the top of the bag is sufficiently loose to allow the line to slip out. Grasp the top of the bag in your throwing hand while holding the loop at the end of the line firmly with your other hand. Throw the bag with an underhand swing, as with the heaving jug, just beyond the victim. This is an excellent piece of equipment to keep in a boat and is also a good addition for large waterfront areas.
- **Rescue tube**—A rescue tube is a vinyl foam, free-floating support with a tow rope and shoulder strap that can be towed easily to a victim ***(Fig. 34).*** It has sufficient buoyancy to support one or more victims. **The rescue tube is an indispensable piece of rescue equipment.** It is flexible, can be wrapped around a victim or the lifeguard, has no sharp or hard edges, and can be used at pools or beaches. See Chapter 9, "Rescues," pages 119–123 and pages 127–132, for methods of using the rescue tube.

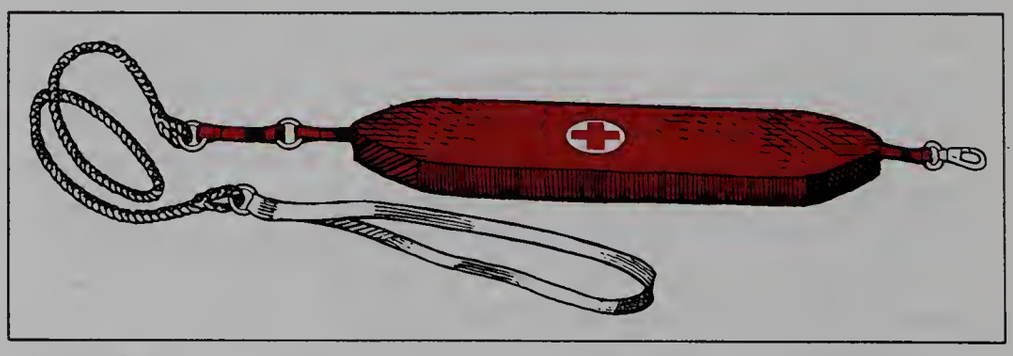


Figure 34
Rescue tube

- **Rescue buoy**—A rescue buoy is made of a lightweight, hard, buoyant plastic ***(Fig. 35)***. Molded handgrips along each side enable a victim to maintain a firm hold on the buoy. The handgrips may also be used by the rescuer to hold the victim to the buoy. Plastic buoys are tough, almost indestructible, and virtually maintenance-free. A towrope, about 4 to 6 feet in length with a shoulder strap, is attached to one end of the buoy. See Chapter 9, "Rescues," pages 123 and 133–135 for methods of using the rescue buoy.
- **Torpedo buoy**—A torpedo buoy formerly was made of metal; newer ones are made of plastic; but this piece of equipment is seldom used today. There are handholds or grip ropes along each side. Smaller versions have a towrope and shoulder strap that allow the rescuer to tow the buoy while the victim holds on to it ***(Fig. 36)***. Larger versions are usually attached to a line that is fed out from shore. The victim and the rescuer can be towed to safety by other lifeguards on shore.

Figure 35
Rescue buoy

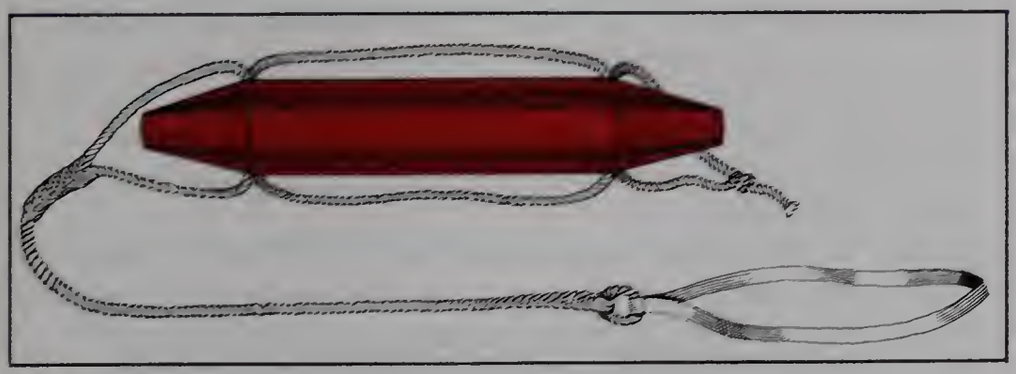


Figure 36
Torpedo buoy

- **Lines and reels**—Lines and reels are sometimes called surf lines or beach lines ***(Fig. 37)***. They are valuable for surf, multi-victim, or ice rescues. The line should be of polypropylene that floats, 1/4 inch in diameter and approximately 500 to 600 feet in length. One end of the line has an eye splice or a snap hook that allows the rescuer to make a shoulder loop or to attach the line to a rescue tube or rescue buoy. The rest of the line is coiled on a reel or is kept in a small box or basket. Reels can be fastened to a lifeguard stand or mounted on portable stands. Larger beaches may have reels mounted on vehicles. A second lifeguard attends the reel to keep it from snagging or fouling. Once contact with the victim has been made, both the victim and the rescuer can be towed to safety.

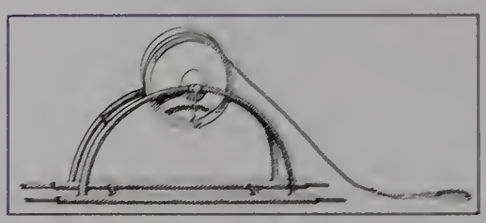


Figure 37
Line and reel

Figure 38
Backboard—top view

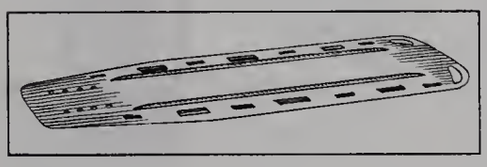


Figure 39
Backboard—bottom view

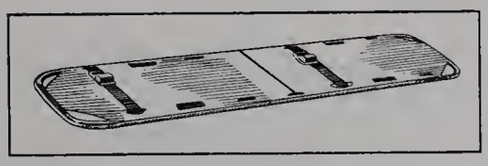


Figure 40
Litter

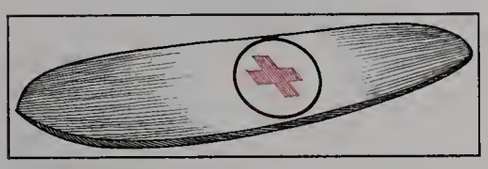


Figure 41
Rescue board

- **Backboard**—A backboard is a standard piece of rescue equipment at all aquatic facilities. Rescuers place a victim of a suspected spinal injury on a backboard to maintain in-line stabilization while removing the victim from the water. Some backboards are made from a heavy plastic material, while others are made from aluminum and can be folded in half for easy storage ***(Fig. 38).*** Another material used for backboards is 3/4-inch marine plywood, 18 inches by 6 1/2 feet, with several coats of varnish. Paints or varnishes should be lead-free. Only high-quality material should be used in making a backboard; injuries may result if the board breaks during use. Handholds or tie holds are positioned along each side. Some backboards have "runners" on the bottom to allow for easier lifting ***(Fig. 39).*** Runners should be fastened to the board with wooden dowels, waterproof glue, or aluminum screws. Many boards have tie-down straps that are permanently attached. Some boards are equipped with adjustable foot plates. Cervical collars made of rigid, waterproof materials are used to support the neck of a victim of suspected spinal injury. The collars come in various sizes. Practice in the proper use of the backboard and cervical collar for suspected spinal injuries should be a regular part of all in-service training programs. Chapter 12, "Spinal Injury Management," contains information on the use of backboards and cervical collars.
- **Litters and stretchers**—Litters and stretchers can be used for emergency transportation. A common litter is the folding type, with aluminum handles and a canvas or vinyl bed ***(Fig. 40).***
- **Rescue boards and surfboards**—Rescue boards and surfboards are generally made of fiberglass. A rescue board is at least 10 feet long and about 22 inches wide and is buoyant enough to support the weight of two adults ***(Fig. 41).*** A surfboard varies from 6 to 8 feet in length, is almost flat on the bottom, has at least one bottom fin, and usually has only enough buoyancy to support one person. It is adaptable for rescue, and it is useful in getting to a victim quickly and providing support for the victim in an emergency. The rescue board is preferred for rescue purposes because it can support two people.

- **Rescue boat**—A rescue boat is most useful for long-distance rescues. The rowboat is a common type of boat used for lifeguard operations ***(Fig. 42).*** A canoe may be used, although it is not very practical. In recent years, there has been an increase in the use of powerboats. The rescue boat should be stationed for easy access and speed in launching. It also can be used to patrol along the edge of the swimming area. The lifeguard has the option of using the boat to make contact with the victim, extending something to the victim or, when there are two lifeguards in the rescue boat, entering the water to assist the victim. Depending on the type of boat, the following equipment may be found in a rescue boat:
  - Extra set of oars
  - Bailer
  - Rescue buoy/tube
  - Towline
  - Reaching pole
  - First aid kit
  - Anchor and line
  - Extra lifejackets (PFDs)
  - Marker buoys (minimum of 3)
  - Resuscitation equipment

  Powerboats are recommended for use as patrol rescue boats in small-boat areas. Further information on the use of rescue boats is in Chapter 16, "Waterfront Areas."

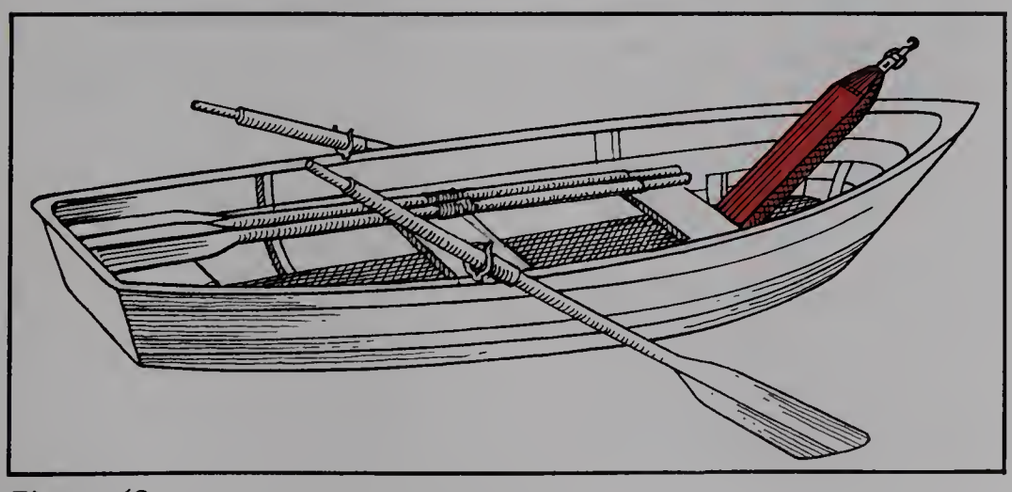


Figure 42
Rescue boat

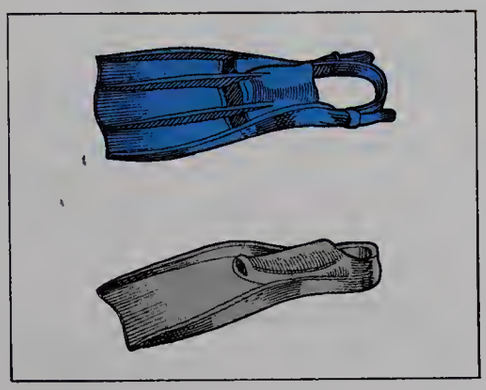


Figure 43
Types of fins

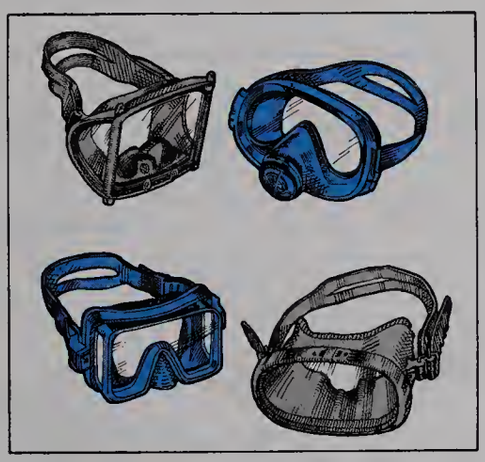


Figure 44
Types of masks

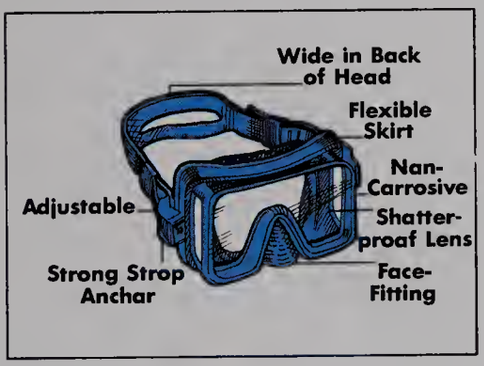


Figure 45
Parts of mask

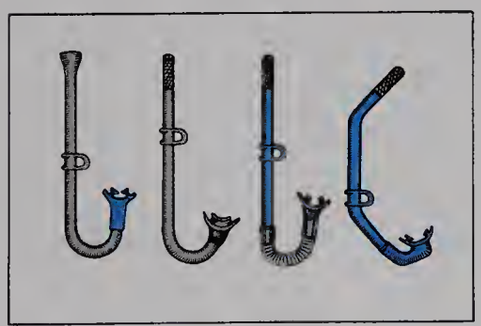


Figure 46
Types of snorkels

- **Fins**—Fins may be used by lifeguards at open-water areas during rescues when a great distance must be covered to reach the victim and then get back to safety. Fins can also be helpful if a lifeguard has to dive to the bottom of a deep diving well to recover a victim, give rescue breathing in open water, or support a victim of spinal injury. They are necessary for search and recovery operations in open-water areas.

  Two basic types of fins are used in diving: the full-foot or shoe fin and the open-heel fin that is held in place with a heel strap ***(Fig. 43)***. Fins should fit well, as chafing can occur with fins that fit incorrectly.

  Open-heel fins are often worn with socks or with rubber or nylon boots. Such boots provide warmth and protection in the water. They also provide protection when fins are removed for walking in shallow water or on land.
- **Mask**—A mask should be made of soft, flexible rubber or silicone ***(Fig. 44)***. It should have untinted, tempered safety glass, a noncorrosive metal or plastic band, and a head strap that is easily adjusted ***(Fig. 45)***. A mask should have a means to block the nose for equalizing pressure. Some masks have a molded nose or fingerwells that allow the wearer to pinch his or her nose in order to equalize pressure in the ears while descending. Some masks have a one-way purge valve that allows the wearer to clear water from the mask without removing the mask.
- **Snorkel**—A snorkel is a rubber or silicone tube that enables the user to swim facedown on the surface and breathe without turning or moving his or her head. It can be "J" or "L" shaped or shaped like a flexible "I" and can have a straight or flared top ***(Fig. 46)***. It should have a soft mouthpiece. A snorkel should be 12 to 14 inches in length and about 3/4 inch in diameter. The larger the inside diameter, the easier it is to breathe, but the harder it is to clear the snorkel.

The top of the snorkel barrel should have a fluorescent red, yellow, or orange safety band around it so that a swimmer can be easily seen. The snorkel is attached to the mask strap with a snorkel keeper or a small piece of rubber or plastic ***(Fig. 47).***

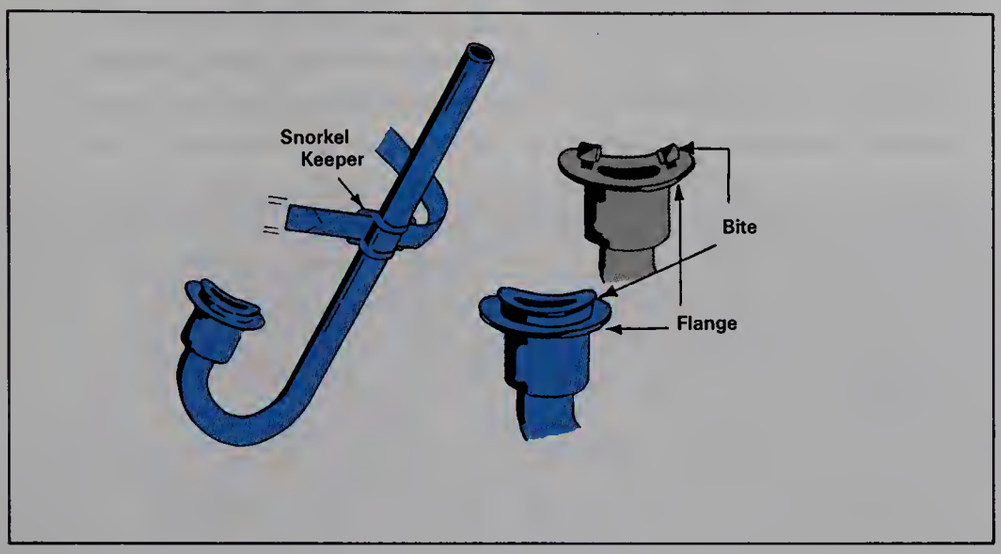


Figure 47
Parts of snorkel

Equipment Categories

Rescue equipment can be divided into primary and secondary categories of importance, according to the type of facility:

- **Pool—Primary:**
  - Shepherd's crook
  - Ring buoy
  - Rescue tube
  - Backboard
  - Litters and stretchers
  - Fins
- **Pool—Secondary:**
  - Reaching pole
  - Heaving line
  - Throw bag
- **Waterfront—Primary:**
  - Reaching pole
  - Rescue tube
  - Rescue buoy
  - Backboard
  - Litters and stretchers
  - Fins
  - Mask
  - Snorkel
- **Waterfront—Secondary:**
  - Ring buoy with lines
  - Lines and reels
  - Torpedo buoy
  - Rescue board
  - Rescue boat
  - Throw bag
  - Heaving line

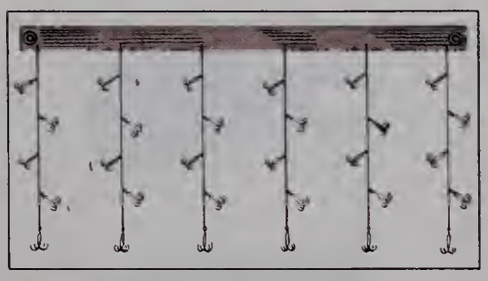


Figure 48
Grappling irons

Search and Recovery Equipment

Search and recovery equipment lifeguards can use includes the following:

- **Grappling irons**—Grappling irons ***(Fig. 48)*** are sometimes used in the absence of a dive rescue team for the recovery of submerged bodies and equipment. They vary in length from 2 to 6 feet. The size of the tow bar is determined by the type of bottom, for example, smooth, rocky, or overgrown with weeds. The tow bar may have several lines attached to it. Each line has a series of 1-inch barbless hooks. Light chain hooks should be used, so that the rig can be freed more easily if it should become snagged. A cable, chain, or rope is attached to each end of the tow bar for dragging operations.
- **Grappling pole**—A grappling pole can be used in areas where the bottom is grassy or is littered with debris or tree stumps. A grappling pole ***(Fig. 49)***, which is 12 to 16 feet in length with a large, barbless hook at one end, can be used to probe for a body or a lost piece of equipment. Only a trained person will be able to distinguish between a rock, a piece of wood, and a human body.

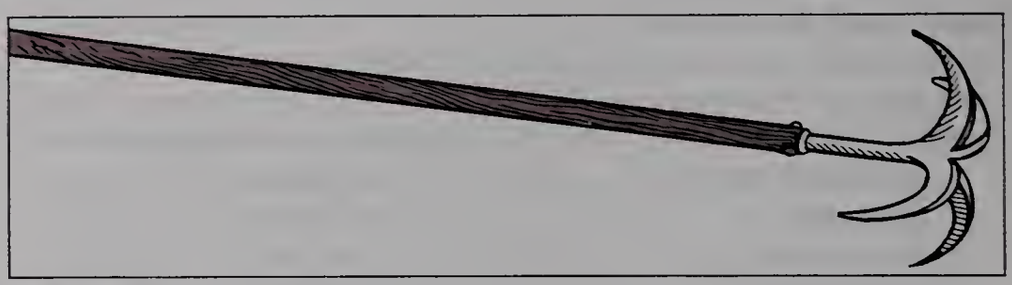


Figure 49
Grappling pole

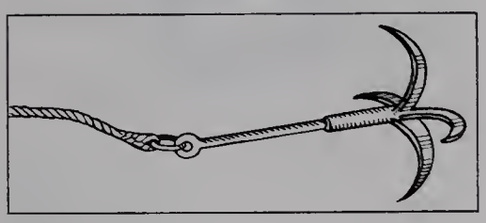


Figure 50
Grappling line

- **Grappling lines**—Grappling lines are lines that have a large, pointed hook attached to the end. They can be used for dragging operations in narrow, deep channels or in small areas between rocks ***(Fig. 50)***.

Procedures for the use of grappling equipment and search patterns are discussed in Chapter 11, "Search and Recovery Operations."

Additional items such as scuba equipment, all-terrain vehicles, and aircraft increasingly are being used in some areas of the United States to aid in rescues. The use of this equipment is based on the type, location, and size of the facility.

To maintain an open airway requires specialized training and additional equipment, such as a self-inflation bag and mask or a mechanical resuscitator. Lifeguards should be thoroughly trained in the type of equipment used at their facility.

7 Emergencies

78 Types of Emergencies

79 Emergency Plans

83 Sample Emergency Action Plan for a Multistaff Facility

88 Sample Emergency Action Plan for a Single-Lifeguard Facility

92 Communication Systems

95 Emergency Situations

96 Water Rescues

Handling emergencies is the responsibility of the lifeguard and the management of an aquatic facility. Every facility should have written, rehearsed procedures specific to every potential emergency. Any delay during an emergency may cause additional problems that could lead to further injury or death. The people using the facility also should be made aware that their cooperation during an emergency is essential because their actions could add to delay.

Various types of emergency situations can occur at an aquatic facility, even one that is well guarded. Any situation that may endanger a facility user, take the attention of the lifeguard away from supervising the swimmers, or require immediate action should be considered an emergency.

Types of Emergencies

The two main types of emergencies—life-threatening and non-life-threatening—are discussed below.

Life-Threatening Emergencies

Emergencies that are life-threatening include those such as when a person stops breathing, is bleeding severely, or has been poisoned. Examples of these are a drowning victim, a person who is bleeding severely, or a person who has been exposed to chlorine gas. Each situation calls for immediate emergency action by the lifeguard to prevent death or permanent damage to the victim.

Additional examples of life-threatening emergencies are—

- Heart attack.
- Spinal injury.
- Heat stroke.
- Fire.
- Natural disaster.

Non-Life-Threatening Emergencies

Non-life-threatening emergencies are those that may require the action of one or more lifeguards, but whose danger to the facility user is minimal. There are two levels of non-life-threatening emergencies:

1. Major emergencies, which include situations such as broken bones, head injury, heat exhaustion, seizure, or a tired swimmer.
2. Minor emergencies, which include situations such as sunburn or abrasions.

A non-life-threatening emergency may become life-threatening if not handled properly. Although the immediate danger to the victim is minimal, the lifeguard still has the responsibility for providing the best care possible.

Some emergencies, whether life-threatening or non-life-threatening, may require the immediate action of only one lifeguard. Others may require the actions of the total facility staff. Some will also require the cooperation of facility users. Because of the various types of incidents, all facility staff members must be educated and trained in how to deal with these problems.

Emergency Plans

A large number of people usually gather at the scene of an emergency. Those directly involved may include the victim, the rescuers, and law enforcement, fire department, and emergency medical services (EMS) personnel. Those indirectly involved may include the victim's family and curious onlookers. In a small area, people indirectly involved can cause a great deal of confusion and can contribute to a delay in rescue and first aid procedures. An emergency plan should contain procedures to control the crowd in an orderly fashion, to allow for the proper care of the victim, and to provide supervision of the facility and easy access to the victim by EMS personnel.

To develop an emergency plan, every type of emergency that may occur at the facility, both life-threatening and non-life-threatening, must be considered. A detailed plan for emergencies that spells out each staff member's responsibility should be in the facility's operations manual. The plan should be thoroughly reviewed and practiced regularly by all staff members, before an emergency occurs.

Additionally, personnel from local law enforcement and fire departments, EMS, gas and power companies, water authority agencies, and chemical supply companies, among others, should be involved in the development and practice of a facility's emergency plans. Each group will have helpful information on emergency procedures and plans.

The following points should be considered when developing an emergency plan:

- **The chain of command or table of organization** should be referred to so that all those involved clearly know and understand their limits of authority and responsibility for their own position and for those of others in the structure. (See Appendix A.)
- **State or local ordinances** should be checked. Facility standards, policies, and procedures should be updated to coincide with all ordinances. This information can be obtained from health departments, police and fire departments, and local utility companies.
- **Past records of emergencies** should be reviewed and analyzed. These records will give the staff information about the causes of previous emergencies and the actions the staff took during these situations. Every potential emergency situation should be defined and analyzed as to cause, prevention, and actions to be taken by each staff member. Consider all conditions such as weather, number of users, number of lifeguards on duty, and any other influencing factors. Then establish a comprehensive action plan for each situation.
- **Support personnel** should be consulted and involved in the development of emergency plans. Police, fire, and EMS personnel can provide valuable information about response times, limits of authority, and the amount and types of assistance available. Give emergency personnel who are expected to respond to a call from a facility clear directions on how to get to the facility. The participation of these support personnel will help to establish a smooth transition process for the victim and all the staff who are involved in an emergency.
- **An area for first aid care** should be designated. When there is no danger of causing the victim further injury, he or she should be moved to the first aid area as soon as possible. The area should be as private as possible, with easy access for rescue personnel. All staff should know the location of the key to unlock the doors and gates leading to the first aid area. All personnel and equipment that will be used in this area should be specified to avoid confusion during an emergency. The area should have clear identification, such as "First Aid Station" or "First Aid Room."
- **All rescue and first aid equipment** should be inspected and located for easy access. Any piece of equipment in bad condition should be removed and repaired or replaced. The inspection should be conducted every day before the facility is opened.
- Each facility staff member should have **primary and secondary responsibilities** to follow in an emergency. These procedures should be rehearsed at least monthly. Repetition develops confidence and the likelihood of smoother response. Lifeguards must remember that in all cases their main responsibility is safety for the people at the facility. They must remain calm in all situations and do what they are trained to do.

- The potential for **multiple-victim emergencies** should be analyzed. Lifeguard reactions to these situations and back-up coverage should be rehearsed.
- Arrangements should be made to **replace all equipment and materials** used during an emergency. For example, if a victim has a suspected spinal injury and is transported to medical care on the facility's backboard, a second board should be available.
- **A written report** should be made for all rescue, injury, and incident cases. A system of records and reports should be developed, and every lifeguard thoroughly trained in the proper procedures for filling out and filing these reports. Further information on records and reports can be found in Chapter 4, "Records and Reports," and sample forms in Appendix C.
- In case of an emergency, the owner or operator of an aquatic facility should designate a specific **person and procedure for informing the victim's relatives and for providing information to the public and news media.** This procedure eliminates the possibility of misinformation being released.
- **Crowd control** is an important part of any emergency plan. Swimmers who have been cleared from the water during an emergency must continue to be supervised. Curious onlookers, who gather whenever an emergency vehicle arrives, must be kept at a distance. A coordinated program for crowd control during an emergency should be established with local law enforcement personnel.

The points above apply to all aquatic facilities and to all staff members. The users of any facility need the benefit of safe conditions and a well-trained staff.

The following sections describe some emergency plans that can be adapted to different facilities. Action steps and the sequences in which they are performed will depend on the type of emergency, the number of staff on duty, available equipment, and the type of facility.

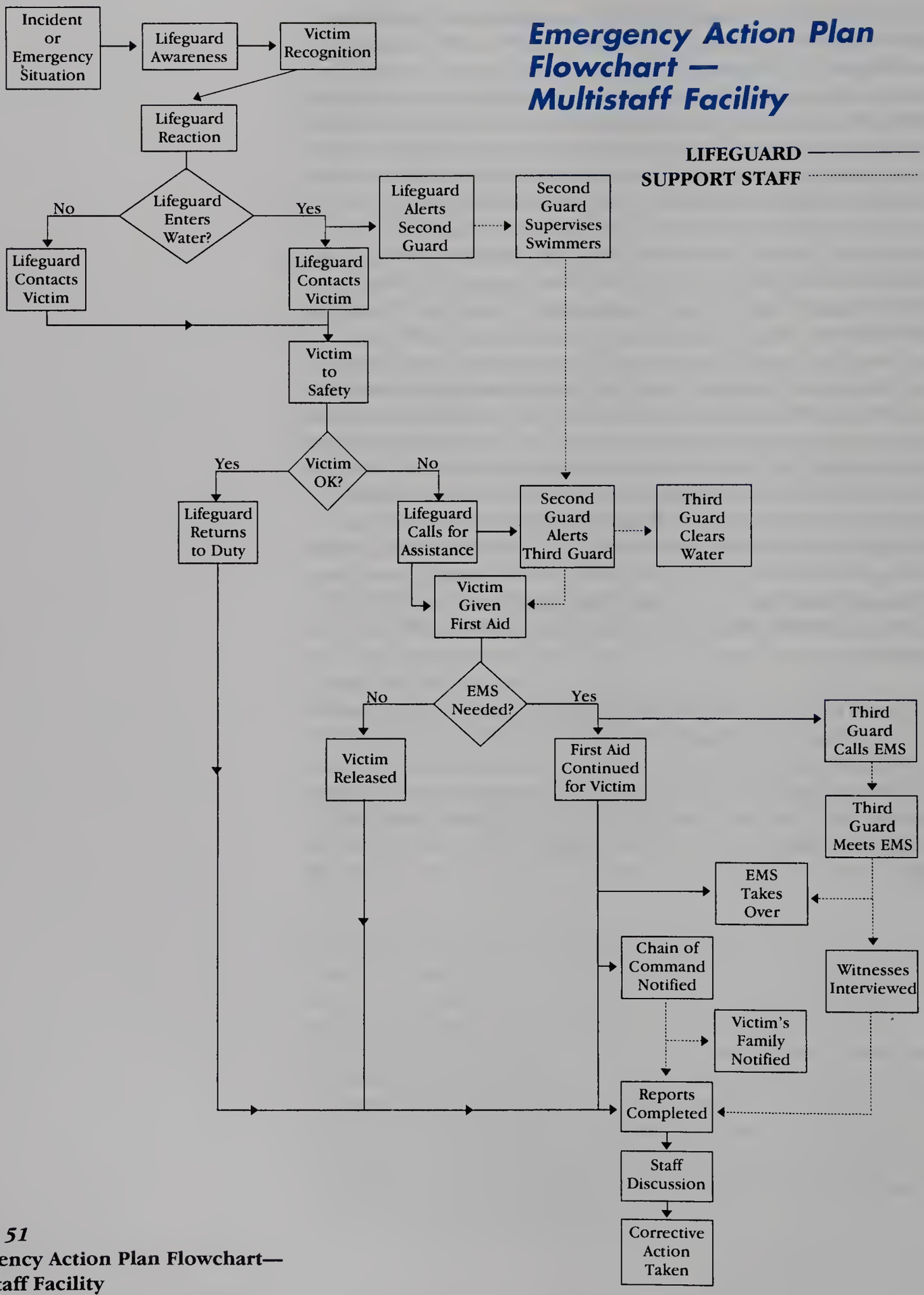


Figure 51
Emergency Action Plan Flowchart—Multistaff Facility

Sample Emergency Action Plan for a Multistaff Facility

Following is a description of each of the steps that should be taken in the event of an incident or emergency at an aquatic facility that has more than one lifeguard. (See ***Figure 51.)***

INCIDENT OR EMERGENCY SITUATION
Any unexpected situation that demands immediate action by a lifeguard or other trained facility personnel.

LIFEGUARD AWARENESS
The lifeguard becomes aware of the situation. (Note that in some cases another person may call the situation to the lifeguard's attention.)

VICTIM RECOGNITION
The lifeguard recognizes that a person needs immediate assistance.

LIFEGUARD REACTION
If a lifeguard leaves an assigned station, a prearranged signal, such as a whistle, air horn, flag, or alarm bell, is given to notify other lifeguards or staff members of an emergency. The lifeguard's area of responsibility must be covered by another lifeguard. The lifeguard may use a specific signal to indicate if the emergency is life-threatening.

LIFEGUARD ENTERS WATER?
No. It is unnecessary for the lifeguard to enter the water.

- **Lifeguard contacts victim.** If the victim is close enough, the lifeguard may use a reaching assist or an extension rescue.

Yes. It is necessary for the lifeguard to enter the water. Supervision of that area of responsibility must continue.

- **Lifeguard alerts second guard.** A prearranged signal, such as a whistle, air horn, flag, or alarm bell, is given to alert a second lifeguard that the first lifeguard has to enter the water.
- **Second guard supervises swimmers.** Once the first lifeguard has entered the water, the second lifeguard must supervise the unattended area of the facility. If more than two lifeguards are on duty, each of them assumes a larger area of responsibility to ensure total supervision of the facility.
- **Lifeguard contacts victim.** The lifeguard uses the proper rescue techniques to prevent further injury to the victim. If the victim is conscious, the lifeguard tries to calm the victim by talking. If the victim is unconscious, the lifeguard determines whether the victim is breathing. If rescue breathing while in the water is necessary, the lifeguard begins rescue breathing as described in Chapter 9, "Rescues." If spinal injury is suspected, the lifeguard should use a proper technique to contact the victim as described in Chapter 12, "Spinal Injury Management."

VICTIM TO SAFETY

Once contact is made with the victim, the victim is brought to safety—to shallow water, to the deck or dock, or to shore. The victim is moved only as far as necessary and only as much as any injuries will allow. For example, a victim with a suspected spinal injury should not be moved until a backboard and collar have been applied.

VICTIM OK?

Once the victim is brought to safety, the lifeguard evaluates the person's condition.

Yes.

- **Lifeguard returns to duty.** If the victim is not injured and is capable of caring for himself or herself, the lifeguard returns to duty after, for example, cautioning the victim to stay in shallow water or pointing out changes in water depth. If the victim received only minor injuries, such as a scraped knee, another staff person should care for the victim. The lifeguard returns to duty as soon as possible. In all cases of swimming rescues, the victim should be examined by medical personnel and a rescue or incident report made.

No.

- **Lifeguard calls for assistance.** If the lifeguard needs help to care properly for the victim, for example to administer cardiopulmonary resuscitation (CPR), the lifeguard gives a prearranged signal to summon other lifeguards or staff members. (See Communication Systems on page 92.)
- **Second guard alerts third guard** by a prearranged signal that two lifeguard stands will be empty because of an emergency. The second lifeguard then takes whatever additional equipment (for example, backboard or resuscitator) may be necessary to the site of the emergency or a prearranged location. This lifeguard also assists the first lifeguard with the victim.
- **Third guard clears water.** Depending on the size and type of the facility, the third lifeguard may need to clear the water of swimmers and ensure that all swimmers get out of the water safely.

  The people at the facility are kept away from the area of the incident. The third lifeguard then takes a position near the site of the emergency in order to help if needed.
- **Victim given first aid.** As soon as possible, the victim is moved to an area where emergency care can be given. If the victim cannot to be moved, emergency care is administered at the site.
- **EMS needed?**
  - **No.**
    - **Victim released.** If there is no need for emergency medical services (EMS) personnel to be called, caution the victim and/or relatives of the victim about any injuries or conditions that may exist. Insist that the victim get medical

treatment if the incident resulted in a head injury, a concussion, an obstruction of the airway, severe bleeding, poisoning, or near-drowning. Note this advice on the injury or rescue report. All victims who have been submerged, even those who appear to be unharmed, should be observed in a medical facility following the incident. Have the victim or a relative of the victim sign an injury report indicating that the person who signs understands what happened and is assuming responsibility for the victim.

- **Yes.** The second lifeguard alerts the third lifeguard to make the call to the EMS system for assistance.
  - **First aid continued for victim.** The victim continues to receive first aid while lifeguards wait for EMS personnel to arrive. The amount and type of care given will depend on the level of training of the lifeguards and how long it takes EMS personnel to arrive.
  - **Third guard calls EMS.** Telephone numbers for police, fire, and rescue organizations should be posted next to the telephone. If it is a pay telephone, have the proper amount of change available for emergency use. When the lifeguard notifies the EMS system, he or she must give exact details, such as the type of emergency or injury, the victim's location, and the first aid care already given. To ensure that this is done, post a "script" near the telephone. The person making the call then needs only to fill in the information about the current emergency. (See Appendix F for an example of an emergency script.)
  - **Third guard meets EMS.** Have the person who called the EMS system or another designated person meet the EMS personnel when they arrive. This person, who should be easily recognizable by EMS personnel, should guide the personnel to the scene and give any needed assistance or any information about the victim.
  - **EMS takes over.** Responsibility for the care of the victim needs to be transferred to the EMS personnel in an orderly way. Have the facility staff return to their duties, except for those who are helping the victim.
  - **Chain of command notified.** If the incident results in serious injury or death, a designated person, usually the head lifeguard or the facility manager, should notify appropriate people in the facility's chain of command, such as the aquatic director or the owner. Do this as soon as possible once the facility has been properly supervised or closed and the proper care has been given to the victim. Have the lifeguard who made the rescue available to answer any questions from the appropriate facility staff and to complete a report.

- **Victim's family notified.** If members of the victim's family were not present at the time of the incident, a designated person, such as the manager or the assistant manager, should contact the family as soon as possible. Inform the family in a way that prevents any undue alarm or worry. There should be no attempt to make a medical evaluation of the victim's condition.
- **Witnesses interviewed.** As soon as possible, have designated staff interview witnesses to the incident. Conduct all interviews individually and privately and document them in writing. Interviewers should record names, addresses, and phone numbers of witnesses.

REPORTS COMPLETED

Keep a record of all assists and rescues. Fill out all required reports as soon as possible, especially in the case of serious injury. Record actions taken by all staff members, with time frames and sequences when possible, while they are fresh in everyone's memory. These reports will be used during the discussion of the incident and for risk management information. Report and replace equipment and material used during the emergency as soon as possible.

STAFF DISCUSSION

Have a meeting of all staff members involved in the emergency to discuss and evaluate the incident, its probable cause, the rescue procedures, and the action of all personnel. If this meeting does not occur on the same day as the incident, hold it with the entire staff as soon as possible.

CORRECTIVE ACTION TAKEN

Conditions that contributed to the incident must be corrected as soon as possible.

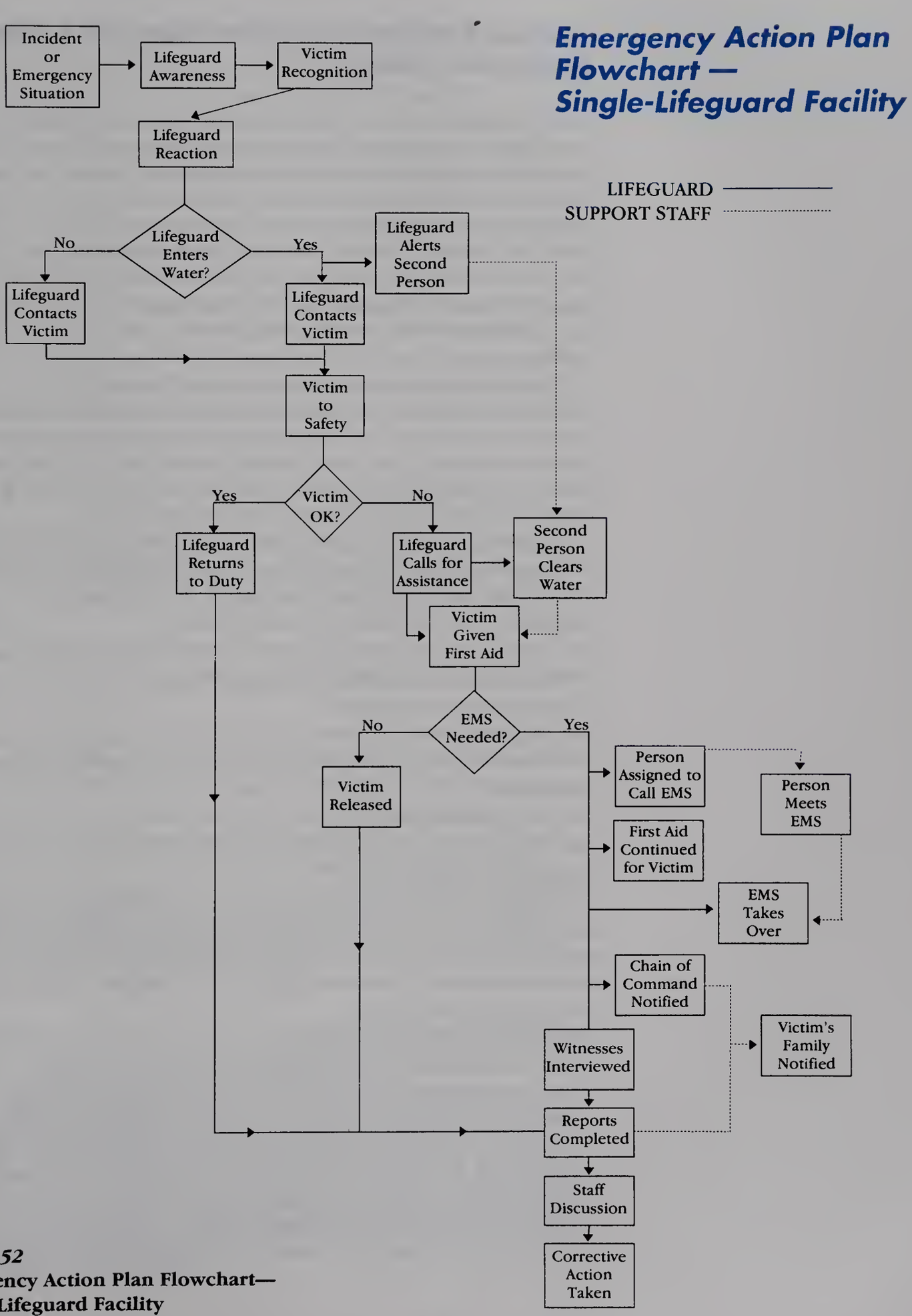


Figure 52
Emergency Action Plan Flowchart—Single-Lifeguard Facility

Sample Emergency Action Plan for a Single-Lifeguard Facility

Many aquatic facilities, because of finances or size, may have only one lifeguard on duty at a time. Examples are swimming pools at apartment complexes, swim and racquet clubs, hotels and motels, and some smaller, private summer camps. One-lifeguard facilities present their own problems for supervision and emergency action plans. For example, how is the facility supervised when the guard goes on a break? Who sends for help? Who gets the first aid equipment? These and other matters of proper supervision should be discussed and clearly understood by the lifeguard and the facility management.

The emergency action plan for a single-lifeguard facility requires an effective communications system and the education of the users. Once the plan has been developed, the procedures and actions of support personnel should be clearly posted and rehearsed periodically with users. A system for communicating with police, fire, and rescue personnel is very important.

Following is a description of each of the steps that should be taken in the event of an incident or emergency at an aquatic facility that has only one lifeguard. (See ***Figure 52*** on page 87.)

INCIDENT OR EMERGENCY SITUATION
Any unexpected situation that demands immediate action by a lifeguard or other trained facility personnel.

LIFEGUARD AWARENESS
The lifeguard becomes aware of the situation. (Note that in some cases another person may call the situation to the lifeguard's attention.)

VICTIM RECOGNITION
The lifeguard recognizes that a person needs immediate assistance.

LIFEGUARD REACTION
If a lifeguard leaves an assigned station, a prearranged signal, such as a whistle, air horn, or alarm bell, is given to notify the facility users and facility staff members of an emergency. The lifeguard takes the necessary rescue equipment, for example, a rescue tube, when leaving the station.

LIFEGUARD ENTERS WATER?
No. It is unnecessary for the lifeguard to enter the water.

- **Lifeguard contacts victim.** If the victim is close enough, the lifeguard may use a reaching assist or an extension rescue. If the victim is conscious, the lifeguard tries to calm the victim by talking. If the victim is unconscious, the lifeguard determines whether the victim is breathing. If rescue breathing while in the water is necessary, the lifeguard begins rescue breathing as described in Chapter 9, "Rescues." If spinal injury is suspected,

the lifeguard should use a proper technique to contact the victim as described in Chapter 12, "Spinal Injury Management."

Yes. It is necessary for the lifeguard to enter the water.

- **Lifeguard alerts second person.** After a quick evaluation of the situation, the lifeguard alerts a second person. This person is ready to get any equipment, such as a backboard or resuscitator, or give any necessary assistance. A prearranged signal lets users and other staff members know that an emergency exists and the lifeguard needs assistance.
- **Lifeguard contacts victim.** The lifeguard uses the proper rescue techniques to prevent further injury to the victim. If the victim received only minor injuries, such as a scraped knee, another staff person should care for the victim. The lifeguard returns to duty as soon as possible. In all cases of swimming rescues, the victim should be examined by medical personnel and a rescue or incident report made.

VICTIM TO SAFETY

Once contact is made with the victim, the victim is brought to safety—to shallow water or to the deck or dock area. The victim is moved only as far as necessary and only as much as any injuries will allow. For example, a victim with a suspected spinal injury should not be moved until a backboard and collar have been applied.

VICTIM OK?

Once the victim is brought to safety, the lifeguard evaluates the person's condition.

Yes.

- **Lifeguard returns to duty.** If the victim is not injured and is capable of taking care of himself or herself, the lifeguard returns to duty after, for example, cautioning the victim to stay in shallow water or pointing out changes in water depth. If the victim received only minor injuries, such as a scraped knee, another staff person should care for the victim. The lifeguard returns to duty as soon as possible. In all cases of swimming rescues, the victim should be examined by medical personnel and a rescue or injury report made.

No.

- **Lifeguard calls for assistance.** If the victim has an injury or needs more care, the lifeguard calls for assistance, using some prearranged signal, such as a hand signal.
- **Second person clears water.** If the lifeguard cannot return to duty immediately, the second person clears the water of all users, using a prearranged signal, such as a whistle or a blast on an air horn. Only qualified lifeguards supervise swimmers in the water. Once the users are out of the water, the second person assists the lifeguard by getting any necessary equipment or helping with the victim.

- **Victim given first aid.** As soon as possible, the victim is moved to an area where emergency care can be given. If the victim cannot be moved, emergency care is administered at the site.
- **EMS needed?**

  No.
  - **Victim released.** If the victim does not require EMS attention (if there is minor bleeding or a sprain, for example), the lifeguard cautions the victim and/or the victim's family, if they are available, about the victim's injury and condition. The lifeguard always advises that victims seek medical assistance. This advice is included in the injury report. Have the victim or a relative sign an injury report signifying that the person who signs understands what happened and is assuming responsibility for the victim.

  Yes.
  - **Person assigned to call EMS.** If the victim's condition requires EMS attention, such as a suspected back injury or cardiac arrest, the lifeguard tells a specific person to notify the EMS system. Post the telephone numbers of police, fire, and rescue units near the telephone. If there is no telephone in the immediate area, make sure directions to the nearest telephone are clearly posted in the facility. The person making the call to the EMS system gives as specific information as possible about the route to the facility and the place where the EMS personnel will be met. (See Appendix F for an example of an emergency script.)
  - **Person meets EMS.** An easily identifiable person meets the EMS personnel and guides them to the victim.
  - **First aid continued for victim.** While waiting for EMS personnel to arrive, the lifeguard continues to give first aid to the victim. The type and amount of care given will depend on the level of training of the lifeguard.
  - **EMS takes over.** Responsibility for the care of the victim needs to be transferred to the EMS personnel in an orderly way. The lifeguard supplies the EMS personnel with any necessary information about the victim.
  - **Chain of command notified.** If the incident results in serious injury or death, the lifeguard notifies the appropriate person in the facility's chain of command, such as the manager or the owner. This is done as soon as possible once the facility has been properly supervised or closed and the victim given proper care.
  - **Victim's family notified.** If members of the victim's family were not present at the time of the injury, they should be contacted as soon as possible. They should be informed in a way that prevents any undue alarm or worry. There should be no attempt to give a medical evaluation of the victim's condition.

- **Witnesses interviewed.** The lifeguard and other facility staff members should interview any witnesses to the injury as soon as possible. All interviews should be conducted individually and privately and documented in writing. Interviewers should record the names, addresses, and phone numbers of witnesses.

REPORTS COMPLETED

The lifeguard completes an injury report as soon as possible for all rescues and serious injuries. Time frames and actions taken are recorded while they are still fresh in the lifeguard's mind. All witnesses' statements, including their addresses and phone numbers, and injury and equipment reports are collected by the designated person in the chain of command, such as the manager or the owner. All equipment and materials used during the emergency procedure are reported and replaced as soon as possible.

STAFF DISCUSSION

Hold a meeting of all staff members as soon as it is practical to discuss and evaluate the injury or incident, its probable cause, the rescue procedures, and actions of all personnel involved.

CORRECTIVE ACTION TAKEN

To prevent similar incidents or minimize their chances of happening again, take corrective action resulting from the staff discussion as soon as possible. This should be done with guidance from the manager and legal counsel.

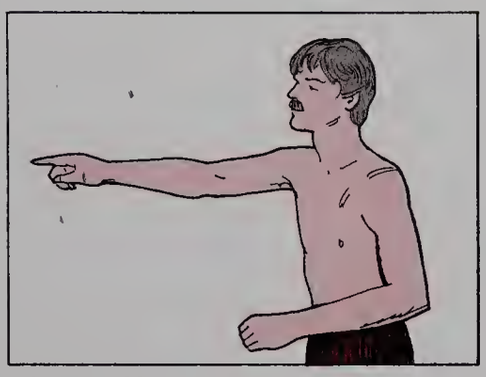


Figure 53
To gain attention

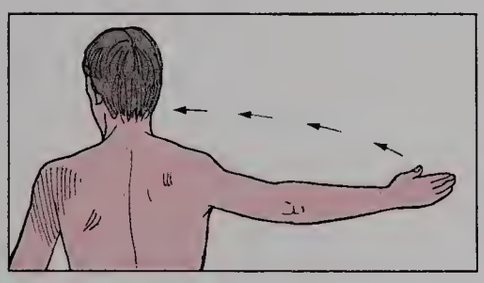


Figure 54
Directing movement

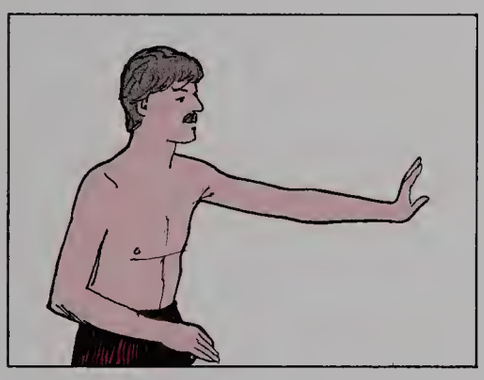


Figure 55
Stop or stay where you are

Communication Systems

Each facility requires its own communication systems which all lifeguards and other staff must learn. The signals used depend on the type and budget of the facility and the number of staff. The signals must be simple, clear, and easily understood. Some methods of communication are described below—

- **Whistle**—Use the whistle sparingly and only when needed, such as when voice commands fail. Whistle signals may be established as follows:
  - One short blast—to get the attention of a swimmer.
  - Two short blasts—to get the attention of another staff member.
  - Three short blasts—to signal that there is an emergency and help is needed.
  - One long blast—to clear the water. (Also used for rest periods or buddy checks. The same signal is used to indicate when swimmers can reenter the water.)
- **Hand signals**—Once the lifeguard uses the whistle to contact another person, the following hand signals can communicate further messages:
  - Point directly to individual ***(Fig. 53)***—To gain attention.
  - Directing movement (arm and hand move in desired direction; palm of hand faces desired direction) ***(Fig. 54)***—Indicates a swimmer is in an area of potential danger and needs to move to a safer area.
  - Arm straight out, palm facing individual; arm is kept stationary ***(Fig. 55)***—Stop or stay where you are.
  - Arm raised up and down over head with fist clenched ***(Fig. 56)***—Assistance is needed.
  - Hand on top of head from side ***(Fig. 57)***—Situation is under control.
  - Repeated pointing or jabbing of arm with a closed fist ***(Fig. 58)***. (Used in conjunction with a whistle.)—Danger or potential rescue.

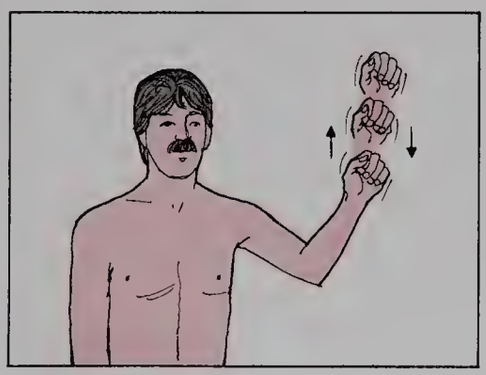


Figure 56
Assistance needed

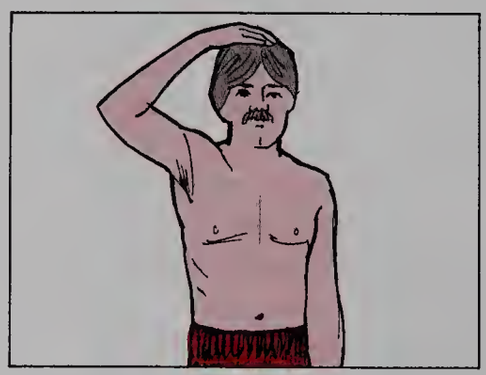


Figure 57
Situation under control

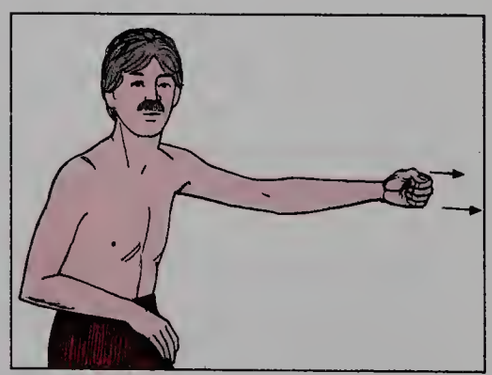


Figure 58
Danger or potential rescue

- Arm extended, waving from side to side, palm of hand facing shore ***(Fig. 59)***—Situation is under control.

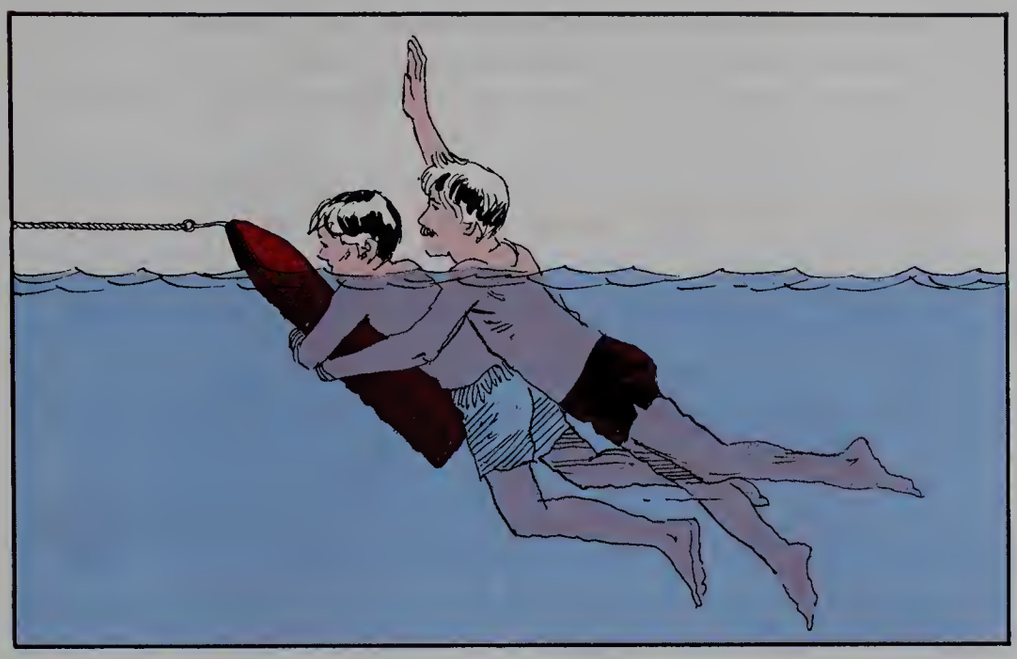


Figure 59
Arm extended—situation under control

- **Equipment signals**—These signals may be given by a second rescuer. The first rescuer should not delay the rescue attempt. Equipment signals may be established as follows:
  - Rescue tube held vertically over head and moved from side to side ***(Fig. 60)***—Assistance is needed. (This may also be used to signal that assistance is on the way.)
  - Rescue tube held horizontally over the head ***(Fig. 61)***—Situation is under control. (Rescue buoy or oar may be used instead of rescue tube.)

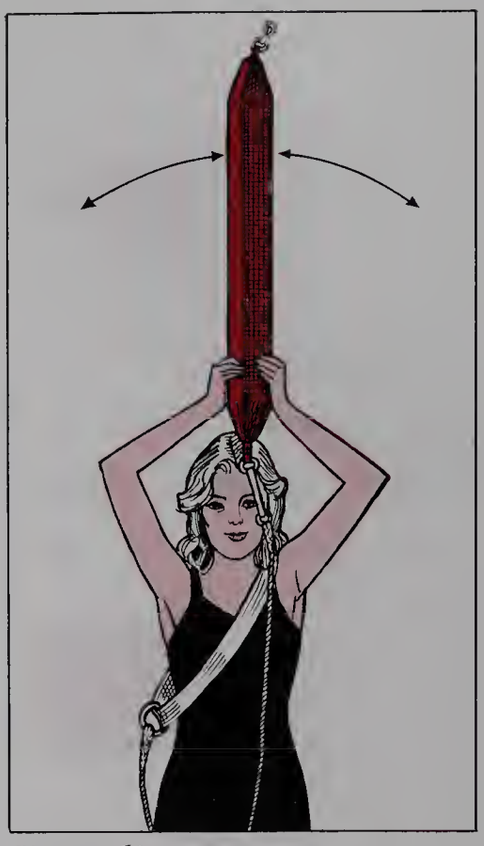


Figure 60
Rescue tube held vertical—assistance needed

Figure 61
Rescue tube over head—situation under control

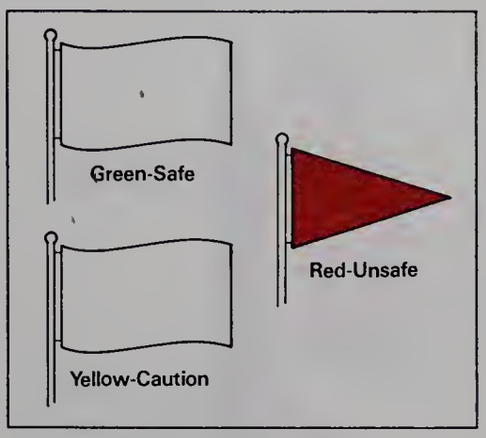


Figure 62
Flags used to indicate conditions

- **Flags**—Flags of different colors displayed on permanent flagpoles may be used to indicate swimming and boating conditions ***(Fig. 62).*** Examples of flag signals are as follows:
  - Green—Safe; facility open for swimming.
  - Red—Unsafe; facility closed for swimming.
  - Yellow—Caution; limited swimming due to current and/or other water conditions.

  A flag, made of plastic or strong nonfading materials, on a staff about 4 feet long, may be attached to the lifeguard stand. The lifeguard should raise or lower it to indicate a normal or emergency situation. Examples are shown in ***Figures 63, 64, and 65.***

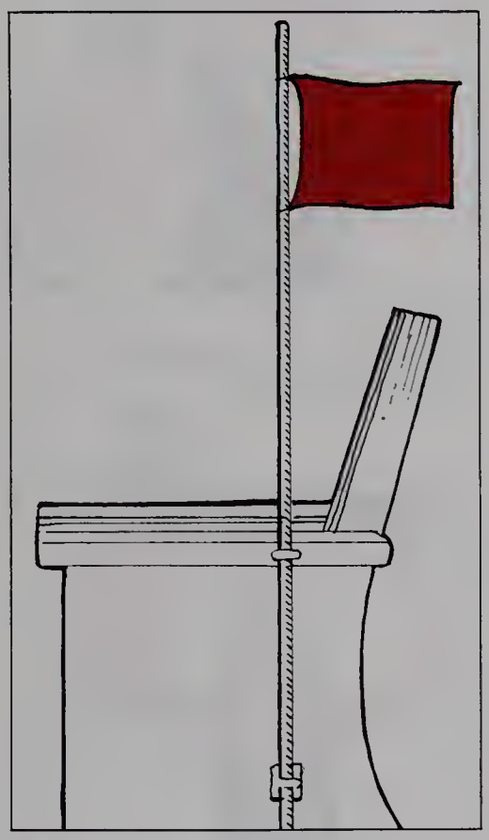


Figure 65
Emergency situation

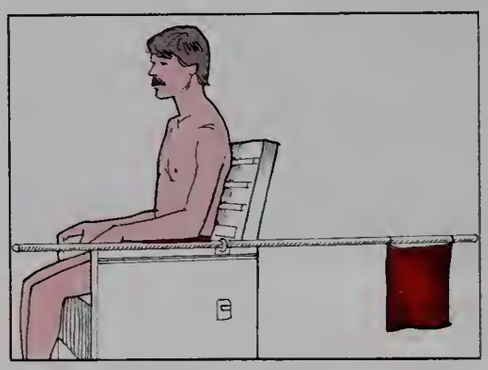


Figure 63
Normal situation

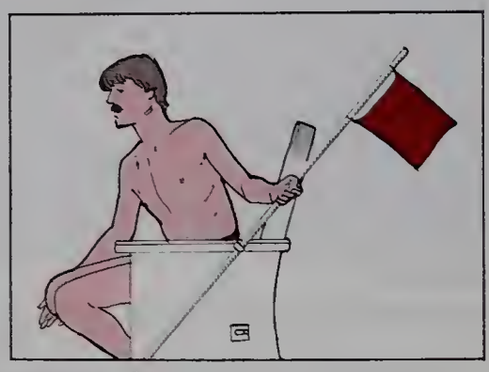


Figure 64
Lifeguard recognizes emergency

- **Additional methods of communication** that can be used at aquatic facilities include—
  - Two-way radios.
  - Telephones.
  - Bullhorns.
  - Public address systems.
  - Air horns.

Emergency Situations

Despite the best efforts of the lifeguard to provide proper supervision, the lifeguard may have to perform a rescue. The lifeguard must rely on proper training, knowledge, and experience to evaluate each situation and act accordingly.

Victim Recognition

An important skill you must develop as a lifeguard is the ability to recognize when a person in the water needs help. Initially, do not be concerned with whether the victim has suffered a cramp, is tired, or has swallowed water. The primary concerns are whether the victim can support himself or herself, and what type of behavior can be expected from the victim. Usually, the movements of the victim will provide you with the needed information.

Distress Situation

In a distress situation, a person in the water is unable to get to safety without assistance. The victim may be able to wave his or her arms and to call for help. Examples of a possible distress situation are—

- A person attempting to swim but making no progress.
- Two or more people holding on to a float, such as an inflatable raft or ring, designed for use by one person.

The distressed person's buoyancy may alternate between neutral and positive. This allows the victim to support himself or herself while waving for help. The victim's face will be out of the water so he or she will be able to get air for breathing and to call for help.

A distressed victim quickly may become a panicky or actively drowning victim. Exercise caution in approaching a distressed victim. You usually can calm a distressed victim by giving support with a rescue tube and by talking. You then can tow the victim to safety.

Drowning Situations

In a drowning situation, a victim is unable to call for help or to wave his or her arms. A distress situation may become a drowning situation when the victim is unable to stay afloat. Drowning situations may be classified as passive or active.

In a **passive** drowning situation, the victim suddenly may slip underwater, making no attempt to call for help, or may float facedown on or near the surface of the water.

A passive situation may result from any of the following causes:

- A heart attack, seizure, or stroke.
- Being hit by an object such as a boat or surfboard.
- Hyperventilation and shallow-water blackout.
- Cold water. (Cold water can give a person a strong urge to gasp. This may cause the person to inhale water.)
- Alcohol or drugs.

In an **active** drowning situation, the victim is conscious and may struggle for approximately 20 to 60 seconds. The victim's actions may be strong or weak, depending on water temperature and the age and physical condition of the person. The victim's head is usually back and he or she may be gasping for air. The eyes may be wide open or closed tightly. The victim's arms will be extended outward from the sides, thrashing the water in a vertical movement, and the victim will make little or no forward progress. Instead, the victim alternately may raise and lower himself or herself in the water. Panic and fatigue will begin to set in, and the victim will be unable to call for help because of concentrating all efforts on breathing. When you first make contact with the victim, support the victim so that he or she can breathe freely; continue to support the victim in a position that allows him or her to breathe freely.

Water Rescues

You must be able to distinguish between a distress situation and a drowning situation. Factors that will determine your actions are the size and condition of the victim, the condition of the water, the distance, and the available rescue equipment. You should be able to recognize immediately whether the situation indicates a swimming or a simple rescue. To ensure your safety as well as the victim's, **always take a rescue device with you.**

The approach to a drowning victim must be made with speed and care. You need to determine if the victim is active or passive and then choose an appropriate approach. Upon contact, support the victim and make a primary evaluation. If the victim is not breathing, start rescue breathing as soon as possible. Administer 2 breaths and monitor the victim's pulse and breathing patterns. If the victim has a pulse but is not breathing, continue to ventilate while moving towards shallow water or safety. You must decide whether to begin rescue breathing or to tow the victim. This decision will depend on the victim's physical condition, whether the victim is breathing or not, environmental factors (waves, water temperature), your physical condition, and how close you are to safety. Select the proper tow or carry quickly.

Sightings and Cross Bearings

In open-water areas, you may be unable to keep the victim in sight at all times because of wave actions or the victim's disappearance underwater. To ensure that you are swimming in a straight line toward the victim, you can use—

- **Sighting**—As you enter the water, sight a stationary object on the far shore, if possible. Maintain this line of sight during the approach swim to the victim ***(Fig. 66).***

An alternative is to pick out a stationary object behind you at the point of entry that is in line with the victim. By periodically looking back to shore and sighting on the stationary object, you can stay on a straight line while swimming to the victim.

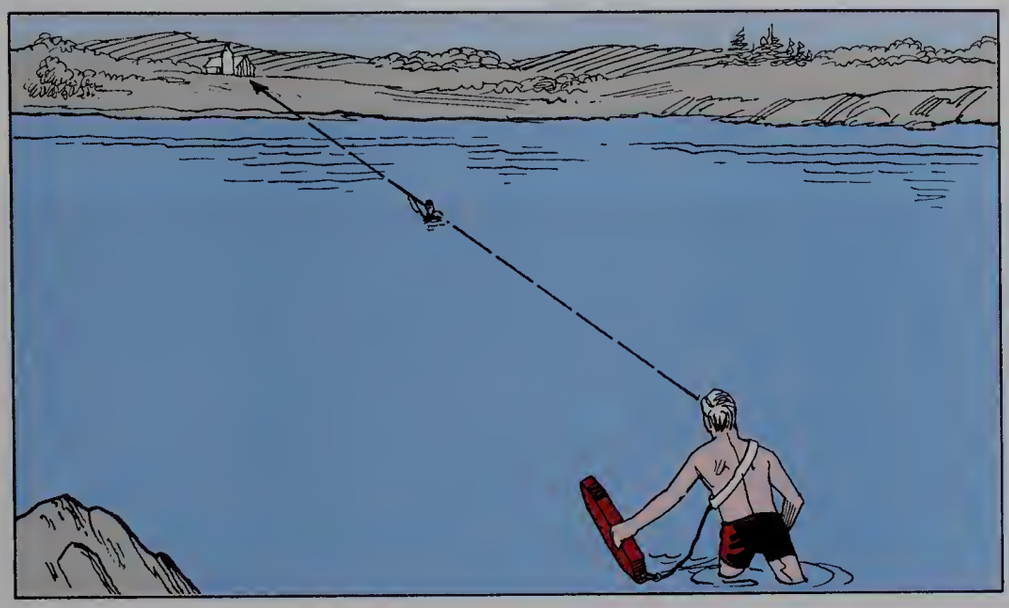


Figure 66
Taking a sighting

- **Cross Bearing**—When another lifeguard or another person is available, a cross bearing can be taken by one or more people spaced along the shore. Each person takes a sighting on the victim. They all continue to point to the victim or to the spot where the victim was last seen. After taking your own sighting, you enter the water and periodically check the spotter(s) on the shore for directions ***(Fig. 67).***

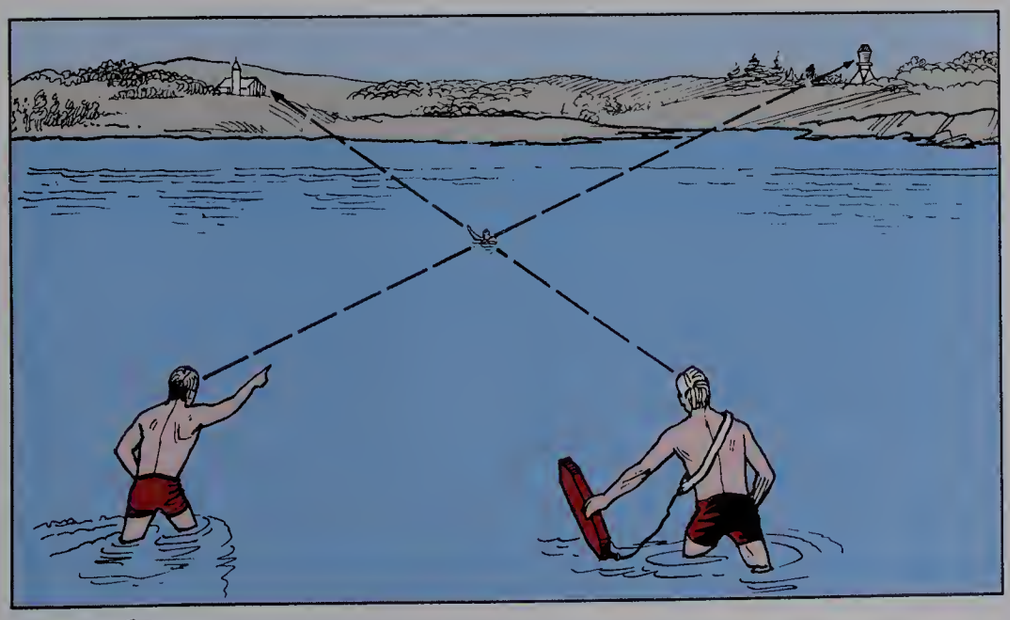


Figure 67
Taking a cross bearing

8 Rescue Fundamentals

100 Entering the Water
100 Approaching the Victim
103 Approach Strokes
103 Ready Position
104 Moving the Victim to Safety
106 Surface Diving
108 Removing the Victim From the Water

A lifeguard must possess fundamental swimming and lifeguarding skills to perform rescues. In a rescue situation, he or she must be able to properly enter the water, approach and carry the victim, and remove the victim from the water. Practice in these skills should be a part of the facility's in-service training program. This chapter describes these fundamental skills. Chapter 9, "Rescues," applies the knowledge of these skills to rescues performed with rescue equipment and to those performed when such equipment is not available.

Figure 68
Stride jump

Entering the Water

The rescue of a distressed or drowning victim begins with an appropriate and safe entry by the lifeguard into the water. You may have to make an entry into a pond, river, lake, freshwater beach, or the ocean. Depth of water, water clarity, knowledge of bottom conditions, height above water, distance to the victim, and condition of the victim are all factors that help determine the type of entry used by a lifeguard.

Approaching the Victim

Depending on the factors present, you may use one of the following entries into the water during a rescue attempt:

- **Stride jump**—The stride jump allows you to keep the victim in sight while you enter water at least 5 feet deep. This entry is appropriate from poolsides or docks 3 feet in height or less. To make the entry, leap into the water with your legs held in a stride or scissors kick position while leaning your upper body forward at an angle of approximately 45 degrees ***(Fig. 68).*** Your hands and arms can be fully extended behind or to the sides of your body or crossed in front of your chest. Upon entry, squeeze or scissor your legs together to provide upward thrust. If your arms are extended behind your body or to the side, pull your hands forward and down upon entry. If your arms are crossed in front of your chest, press your hands down and move them outward in breaststroke fashion.
- **Feetfirst entry from a height**—Use a feetfirst entry when you must enter the water from a height of 3 to 5 feet. Do not attempt this entry if the water depth is unknown. To make a feetfirst entry, enter the water in a vertical position with arms at your sides, legs together, and knees slightly flexed. Keep your head erect and your eyes on the victim ***(Fig. 69).*** When your head goes under water, extend your arms outward while you spread your legs in a scissors or breaststroke position. Once you have stopped descending, swim to the surface.

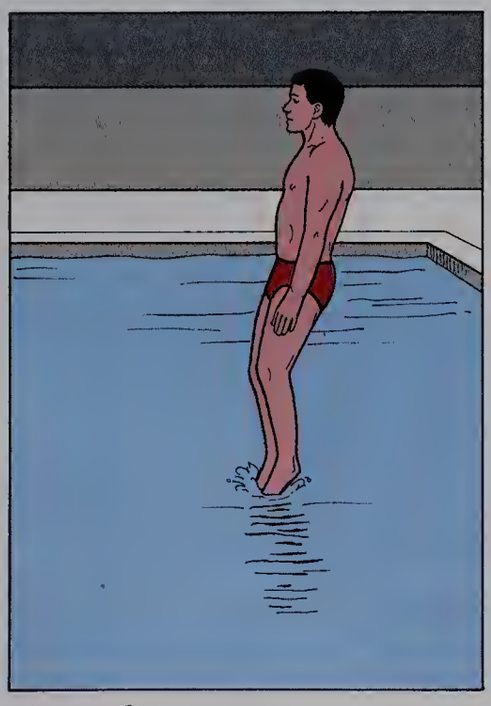


Figure 69
Feetfirst entry

- **Ease-in**—Use this entry from a poolside or dock to rescue a victim with a suspected spinal cord injury or when water depth is less than 5 feet or is unknown. Keep the splash and ripple action of the water to a minimum when you are approaching the victim of a suspected spinal injury. Enter by sitting down on the edge of the pool or dock, facing the water. Keep your eyes on the victim while gently sliding into the water ***(Fig. 70).***
- **Entry into beach, shallow-water flume pools, and wave pools**—When entering or running in shallow water, lift your legs up high to avoid tripping ***(Fig. 71).*** As the water deepens to the point where running is no longer possible, lean forward while springing off one foot and do a shallow dive. Be careful when using this entry to keep your body, arms, and head in the streamlined position. By dropping either your head or arms, you change your body's angle of entry from shallow to deep. Such an entry could cause your head to hit the bottom. A flat entry will keep you near the surface.

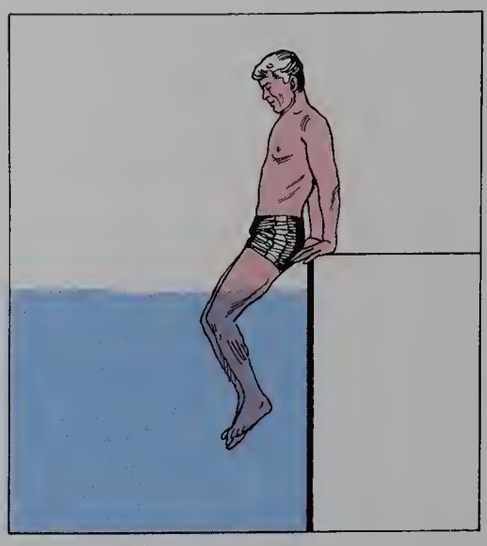


Figure 70
Ease-in entry

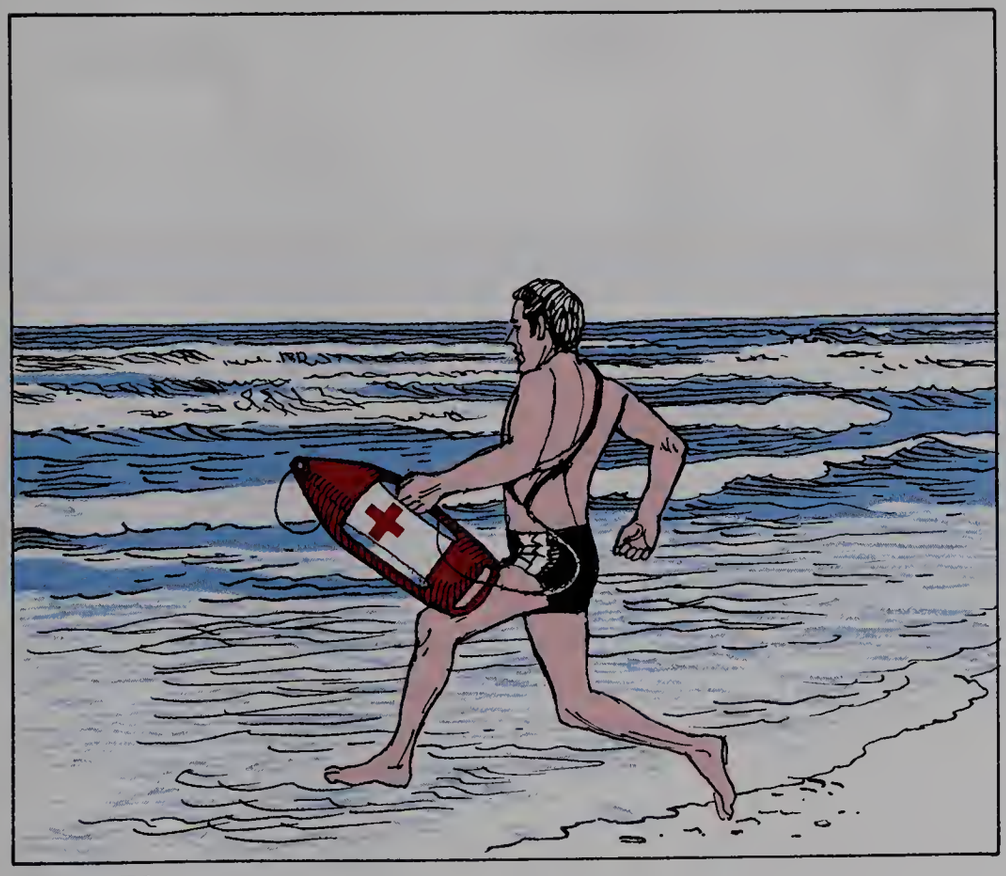


Figure 71
Beach entry

- **Shallow dive**—Lifeguards standing on a dock or at poolside often have the opportunity to begin a rescue by using a variation of a competitive racing start. This shallow dive provides a quick start, keeping you near the surface of the water and enabling you to begin swimming immediately.

  To perform a shallow dive, step to the dock or pool edge, spread your feet about shoulder-width apart, and place your toes over the edge to help prevent slipping. Crouch down, bending your knees so that your back is parallel to the water's surface. Lean forward, swing your arms back, and prepare to spring forward. Press against the dock or pool edge with your toes, extend your legs, and swing your arms forward until fully extended over your head ***(Fig. 72)***. Drop your head slightly, allowing your hands to enter first. While this dive provides a shallow angle, it should be used only where water and bottom conditions are known and the water depth is at least 5 feet.

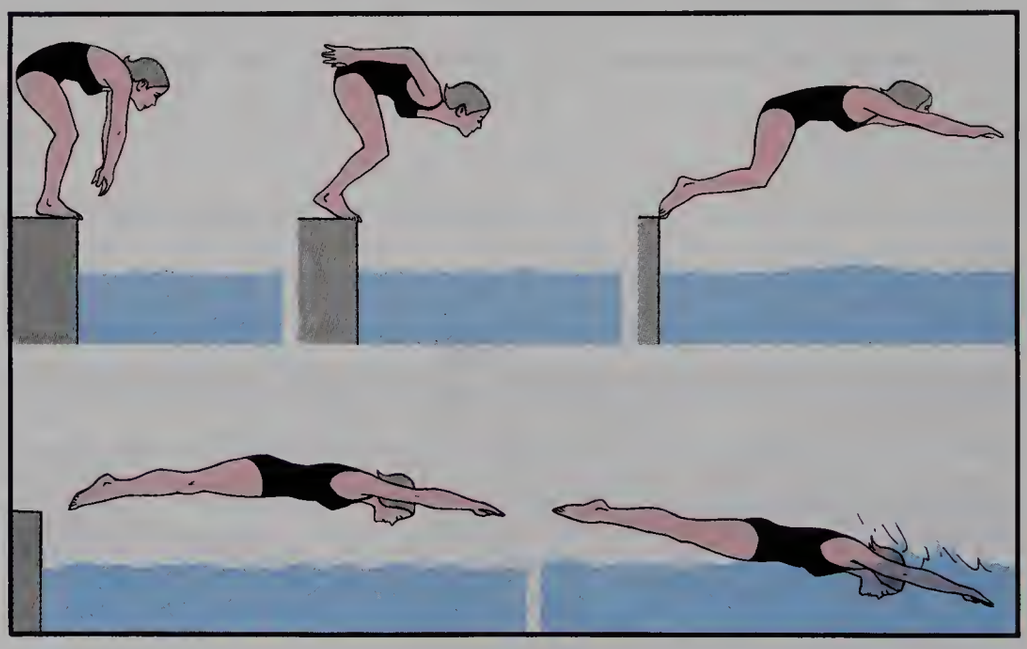


Figure 72
Shallow dive

Approach Strokes

Speed is an essential component of every rescue. An actively drowning victim is usually on the surface for not more than 60 seconds. The lifeguard, therefore, should use the fastest strokes available and make occasional visual contact with the victim. The best approach strokes are the crawl stroke and the breaststroke:

- **Crawl stroke**—The crawl stroke is without question the fastest of all strokes. As an approach stroke, you should perform it with your face in the water to lessen frontal resistance and maximize speed. While swimming toward the victim, rotate your head forward occasionally, looking toward the victim while you breathe, and refocus on the victim's location.
- **Breaststroke**—While the breaststroke is slower than the crawl, it is a very effective approach stroke which allows the lifeguard to swim on the surface or underwater. The breaststroke provides speed and energy conservation and, because breathing is done while looking straight ahead, it gives the lifeguard the opportunity for quick looks at the victim. It is useful in rough water.

Ready Position

In preparing to make contact with a victim, assume the "ready position." This position prepares you to defend yourself and swim away if the victim tries to grab you while you are making a rescue. You should stop approximately 6 feet from the victim, determine what rescue technique the situation requires, attempt to reassure the victim, and assume the ready position.

To get into the ready position, stop beyond the victim's reach (approximately 6 feet), tuck your legs under your body, and sweep your arms forward beneath the surface while leaning away from the victim. Then use a sculling action (hands in a figure-8 "push-pull" movement, while floating on your back) to move toward the victim for contact. The ready position places you in a good swimming position before contact has been made during a rescue and prepares you to support the victim with your kick.

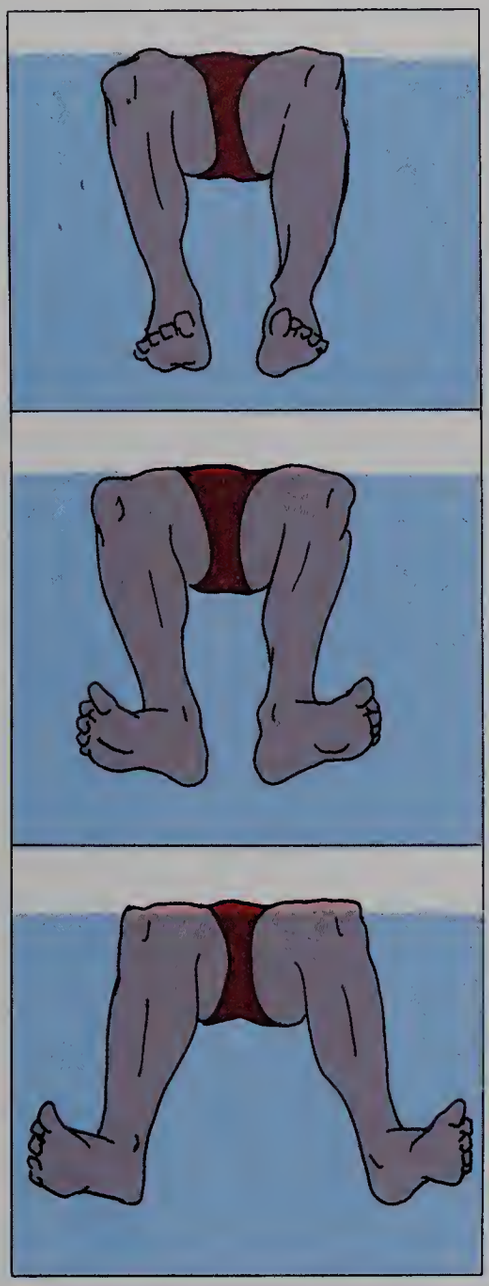


Figure 74
Elementary backstroke kick

Moving the Victim to Safety

Once you have made contact with the victim, you must move the victim to safety. To do this you should be familiar with several different techniques:

- **Scissors kick**—Flex at the hips. Draw your knees slowly toward your trunk until your thighs are at about a 45 degree angle to your trunk. Extend the top leg forward and the bottom leg backward. Bring your legs back together strongly, propelling the person forward.
- **Inverted scissors kick**—This kick is done like the scissors kick described above except the leg nearer to the surface (top leg) extends back and the leg further from the surface (bottom leg) extends forward ***(Fig. 73)***.

Figure 73
Inverted scissors kick and shallow arm pull

- **Elementary backstroke kick**—A lifeguard may possess a stronger elementary backstroke kick than scissors kick and may choose to use this kick ***(Fig. 74)***.

- **Rotary kick** (eggbeater kick)—This kick is an excellent kick to use in a water rescue. The kick uses a continuous rotary movement of the feet around the knee joint to generate downward force ***(Fig. 75).*** Applications for this kick include the ready position, carrying a victim, and deep-water spinal injury management. When learned well, the rotary kick is the best supporting kick for rescue purposes.
- **Lifesaving stroke—**The primary stroke used to carry a victim to safety is the lifesaving stroke. It is an adaptation of the sidestroke in which the lifeguard uses the top arm for contacting and supporting the victim being towed or assisted. The lifeguard's top arm is used to tow or carry the victim. The lower arm's action is basically the same as performed in the side stroke and alternates with the scissors kick. This is the shallow arm pull ***(Fig. 73).*** There are minimum glide intervals between propulsive efforts. When doing the lifesaving stroke with the inverted scissors kick, the stroke movement and timing are identical.

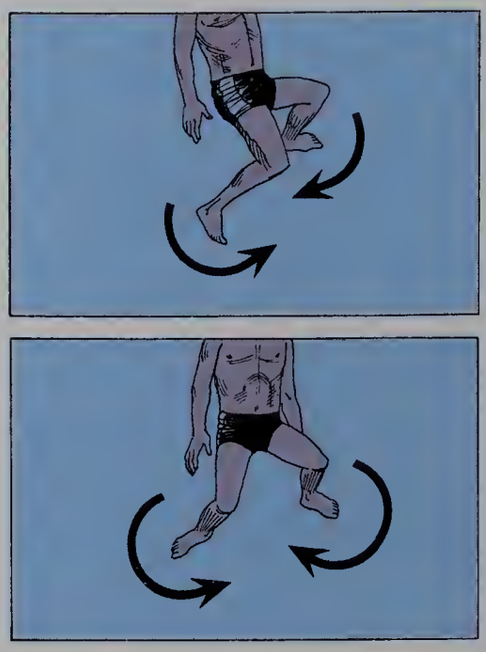


Figure 75
Rotary kick

Surface Diving

Sometimes a victim is under the surface of the water. Surface diving enables a lifeguard to submerge to moderate depths to rescue or search for a submerged victim. Three surface dives are useful:

1. **Feetfirst surface dive**—This dive is the safest to use in murky water or when the water depth is unknown. Begin the dive while treading water. Press downward vigorously with your hands and simultaneously execute a strong scissors, breaststroke, or rotary kick. The thrust of your hands and legs raises your body high in the water. Allow your body to sink, hands by your sides, keeping your legs straight and together with the toes pointed toward the bottom of the pool. Stay in this position until your head is submerged and your downward momentum begins to slow. Rotate your wrists, turning your palms outward, and press vigorously upward (toward the surface) with your hands ***(Fig. 76).*** Bring your arms back to your side and pull again, if desired. Then level out and swim forward underwater.

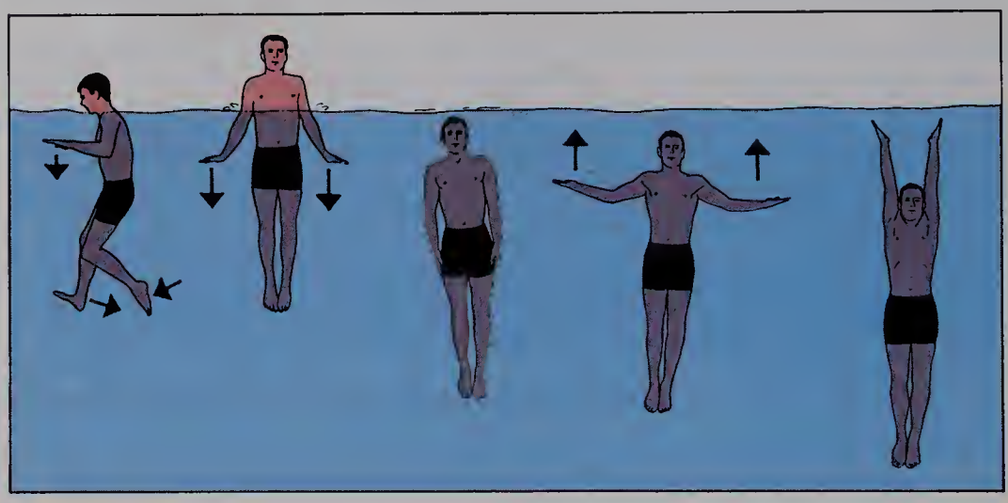


Figure 76
Feetfirst surface dive

2. **Pike surface dive**—Use the pike surface dive in clear water. Swim the breaststroke on the surface until ready to dive. Then lower your head and flex at the hips while pressing your arms and palms backward to your thighs. Lift and extend your legs while bringing your arms forward in line with your body. Open your eyes and look down while lifting your legs ***(Fig. 77).*** When all movements are coordinated properly, your legs will rise above the surface with the knees straight, which will help you to make a rapid descent.

Figure 77
Pike surface dive

3. **Quick surface dive**—The quick surface dive is almost identical to the pike surface dive. It is used when speed is important, for example, when an exhausted victim slips beneath the surface as you approach. The dive starts with good forward momentum from using the crawl stroke. To execute the dive, take a breath and plunge your lead arm downward and then bring the other arm down to meet the extended arm while flexing at the hips ***(Fig. 78).*** Lift your legs high up in the air so that the weight of your legs aids the descent. Open your eyes and look down while lifting your legs.

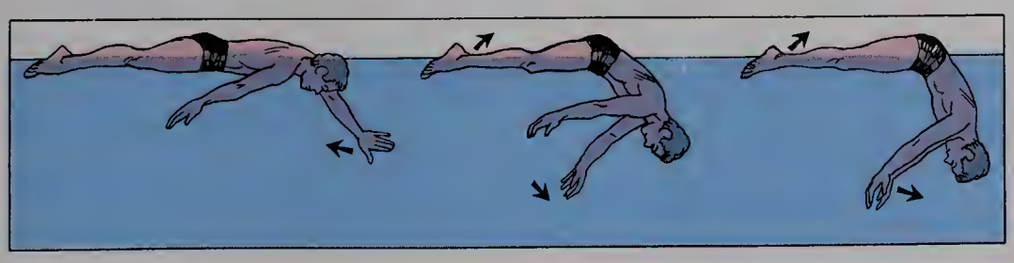


Figure 78
Quick surface dive

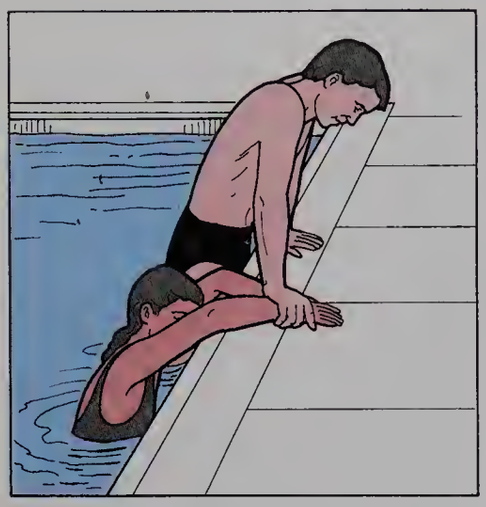


Figure 79
Maintain contact with victim

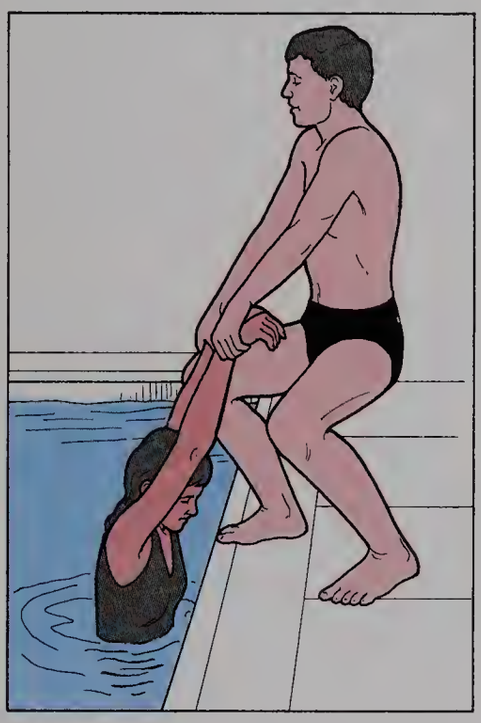


Figure 80
Use the legs to lift

Removing the Victim From the Water

Practice removing a victim from both deep and shallow water. Lifts, assists, and carries must be practiced regularly so that valuable time will not be wasted during an emergency. Great care must be taken not to injure either the victim or yourself when lifting or carrying the victim. Lifts and carries must never be used if there is a possibility that the victim has a spinal injury.

Following are some methods for removing a victim from the water:

- **Lift from the water by one or two lifeguards**—Whenever you lift a victim from the water onto a deck or dock, you must constantly maintain contact with the victim ***(Fig. 79).*** To prepare for the lift, grasp each of the victim's wrists. Your primary source of power when lifting should be your legs instead of your back ***(Fig. 80).*** The victim's head should be protected as you lower the person to a prone position ***(Fig. 81).*** While pulling the victim's legs out of the water, take care not to twist the victim's back. Rotate the victim as a unit ***(Fig. 82).*** A heavy victim may require the help of two lifeguards. Each lifeguard holds one of the victim's wrists, lifts in a coordinated effort, steps back with one leg, and lowers the victim gently.

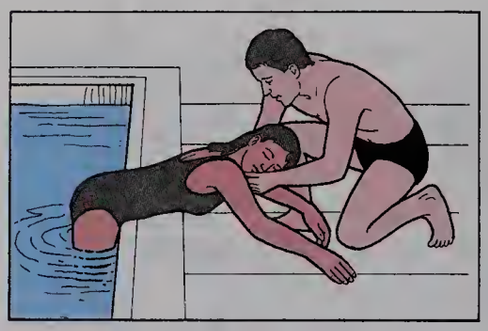


Figure 81
Protect victim's head

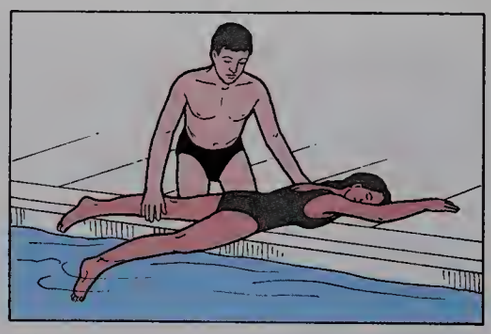


Figure 82
Rotate victim as a unit

- **Shallow-water assist**—When assisting a conscious victim from shallow water, take a firm grasp on the wrist of the victim's arm that is across your shoulder. Wrap your free arm around the victim's back and maintain a firm grasp at the victim's side ***(Fig. 83).***
- **Beach drag**—The beach drag is the safest and easiest method of removing a victim from the water when the victim is unconscious, when there is a sloping beach, or when the victim is heavy and unable to walk. Grasp the victim under the armpits and walk slowly backward ***(Fig. 84).*** If possible, support the victim's head with your forearms. The victim can be removed completely from the water or taken to a point where at least the person's head and shoulders are out of the water. Your back should be as straight as possible during the drag.

Figure 83
Shallow-water assist

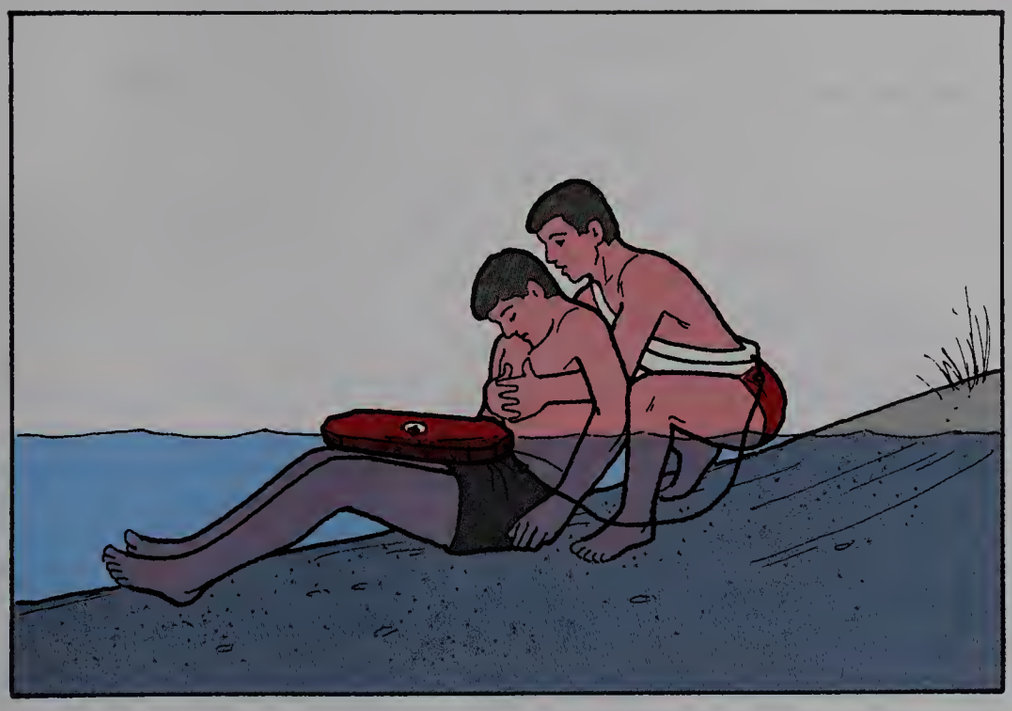


Figure 84
Beach drag

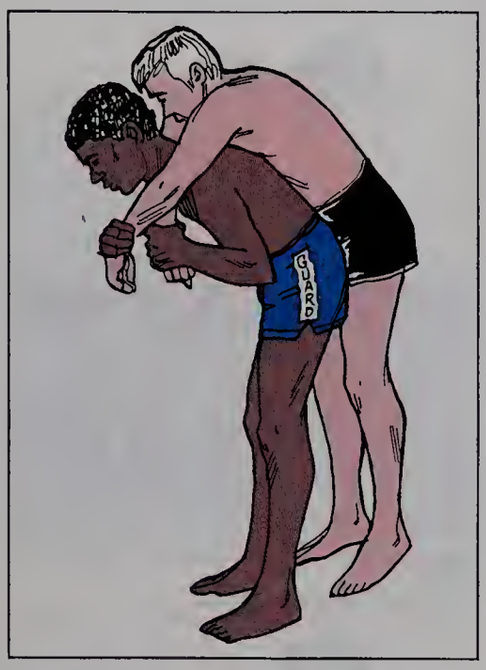


Figure 85
Pack-strap carry

- **Pack-strap carry**—The pack-strap carry is an excellent carry for removing a victim from the water. The pack-strap carry may be used for either conscious or unconscious victims. When the victim has been brought to waist-deep water, move to the victim's side, supporting the victim with one knee while grasping the victim's left wrist with your left hand and right wrist with your right hand. Turn your back to the victim and bring the victim's arms over your shoulders while crouching down slightly. Cross the victim's wrists and hold them in front of your chest ***(Fig. 85).*** The victim's arms should be straight with the armpits directly over your shoulders. The victim should be well balanced before the carry is started and during the carry to the beach. Lean forward slightly to keep the victim well up on your back. Lower the victim carefully to the ground by kneeling slowly on one knee, then on both knees, while using one arm to support the head ***(Fig. 86).*** Gently roll the victim to one side and onto the ground while maintaining a grasp on one of the victim's wrists ***(Fig. 87).*** Care must be exercised during these movements to prevent the victim's head from hitting the ground.

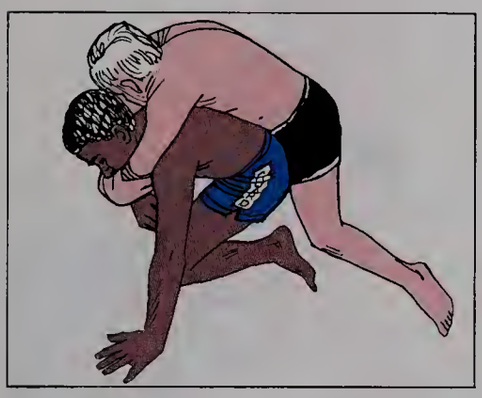


Figure 86
Lower victim by kneeling slowly on one knee

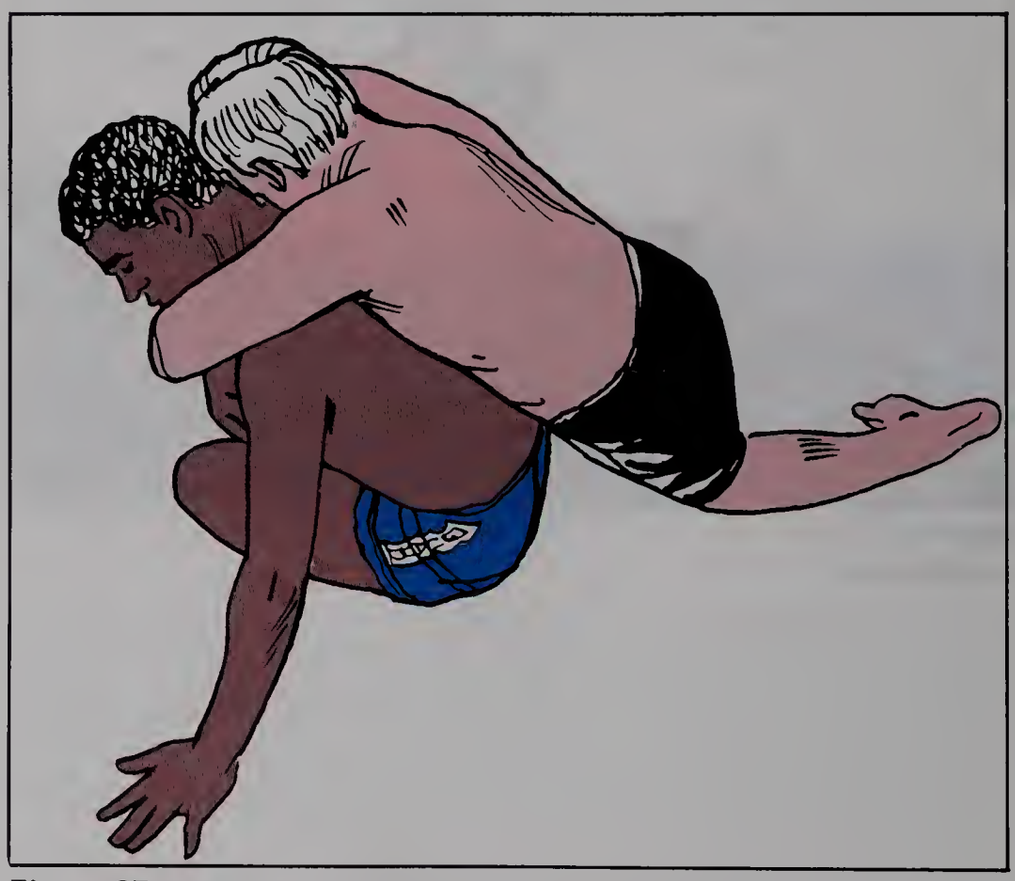


Figure 87
Gently roll victim to one side and onto ground; maintain grasp on one wrist

9 Rescues

113 Simple Assists
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126 Rescue Breathing in the Water
136 Multiple-Victim Rescues
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Lifeguards may select from a variety of rescue techniques for any aquatic emergency. It is important for lifeguards to have a clear understanding of which rescue techniques provide the best margin of safety for both the lifeguard and the victim as well as which techniques are the most efficient.

Today's aquatic facilities should have equipment on hand for safe and effective rescues. You, as a lifeguard, must consider the safety of the victim first, but at the same time you must take every precaution to ensure your own safety. Whenever you have to make a swimming rescue, be sure to take some piece of rescue equipment, such as a rescue tube, with you.

A simple assist should be your first choice if it is the most expedient form of rescue. Simple assists are those that do not involve swimming to the victim. They include reaching, extending, wading, and throwing.

There are times when victims in the panic of a drowning situation will not notice a rescue device that you have thrown to them. When this happens or when a victim is too far away for a simple assist, it is better for both you and the victim if you have a piece of rescue equipment with you because with equipment—

- You have little or no direct contact with the victim.
- You have more freedom while swimming and towing the victim.
- The victim has more flotation. This may allow the panicky victim to calm down and regain enough self-control to follow instructions.
- You expend less energy.
- You can give immediate rescue breathing to a nonbreathing victim.

Simple Assists

Simple assists, such as reaching, throwing, and wading, are the safest ways to help a person in difficulty without exposing yourself to unnecessary dangers. When attempting to assist a victim, every rescuer, even a trained lifeguard, must maintain a position of safety. The rescuer should be well braced on shore, on a pier or pool deck, or in a small boat. The rescuer should also hold on to a rescue device such as a rescue tube whenever possible. Actual contact with a victim can be dangerous and is unnecessary—the assist can usually be made by reaching, extending the reach, or using a boat. When it is necessary to actually swim to the victim, stay out of reach and extend some type of basic rescue equipment or a buoyant object to the victim.

Reaching Assists

In a reaching assist, you first should attempt to extend a pole or a shepherd's crook from a deck or pier to the victim. If this is not possible, lie flat with your body anchored and extend a hand to the victim. Grasp the victim's wrist from above ***(Fig. 88)*** and then slowly and carefully draw the victim to safety.

Figure 88
Reach from deck

If you cannot reach the victim from the prone position, quickly slip into the water. While firmly hanging on to a support with one hand, reach out with your free hand, grasp the victim's wrist, and pull the victim to safety ***(Fig. 89)***.

Figure 89
Arm extension from pool ladder

If the victim is beyond arm's reach in the water, you may extend your legs to the victim while maintaining a firm grasp on a pool ladder, overflow trough, or piling ***(Fig. 90)***.

While attempting a reaching assist, keep talking in an effort to calm and instruct the victim.

Figure 90
Leg extension from pool ladder

The hook end of a **shepherd's crook** can be placed around the victim's chest under the armpits. It is especially useful when a victim is unable to grasp an extended rescue device. Keep firmly braced and slowly pull the victim to safety ***(Fig. 91).*** (A lifeguard in an actual rescue would most likely enter the water and pull the person to safety.)

Figure 91
Shepherd's crook—passive victim

For actively drowning victims, gently extend the rounded-hook end of the shepherd's crook to the victim's chest, allowing the victim to grasp it, or extend the crook past the victim with the open side of the hook on the side opposite the victim. When the pole contacts the victim, turn it so that the open side encircles the victim's torso. While keeping your weight low and leaning away from the victim, pull the victim gently to safety ***(Fig. 92).***

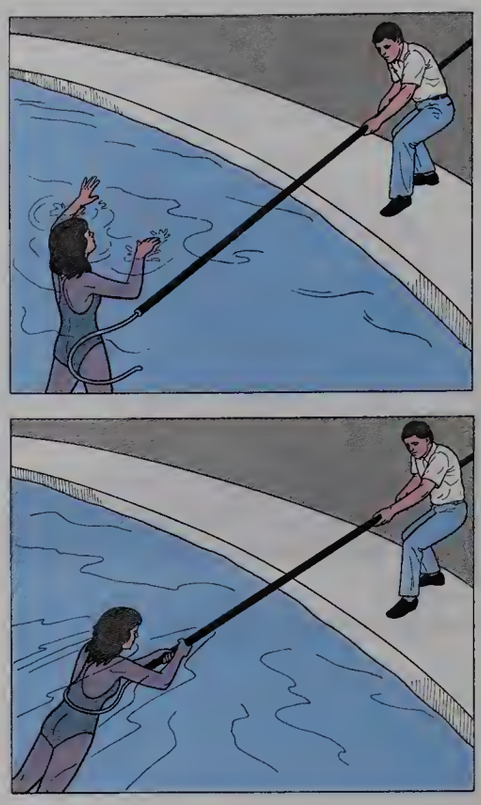


Figure 92
Shepherd's crook—active victim

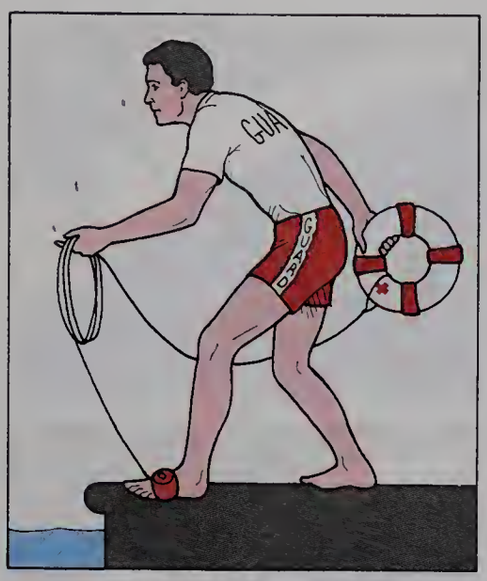


Figure 93
Maintain your balance

Throwing Assists

You can throw a ring buoy or other device so that the victim can grab it and be pulled to safety. In order to throw—

- Get into a position that is safe and allows you to maintain your balance ***(Fig. 93).***
- Bend your knees.
- Step on the nonthrowing end of the line ***(Fig. 94).***
- Aim your throw so that the device will fall just beyond the victim but within the victim's reach ***(Fig. 95).***

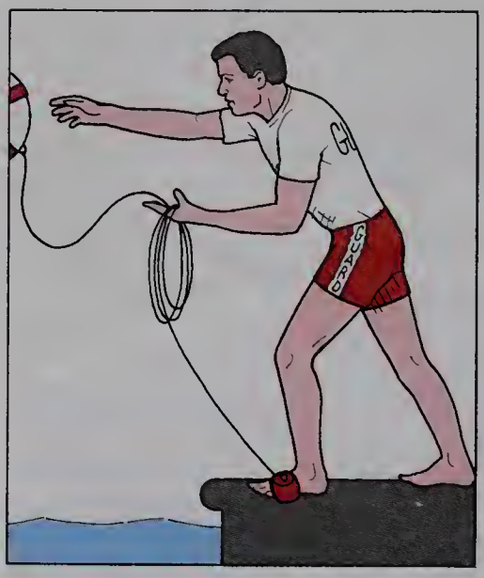


Figure 94
Step on nonthrowing end of line

Figure 95
Aim throw just beyond victim

- When the victim has grabbed the device, talk reassuringly while slowly pulling the victim to safety. Lean your body weight away from the victim as you pull ***(Fig. 96).***

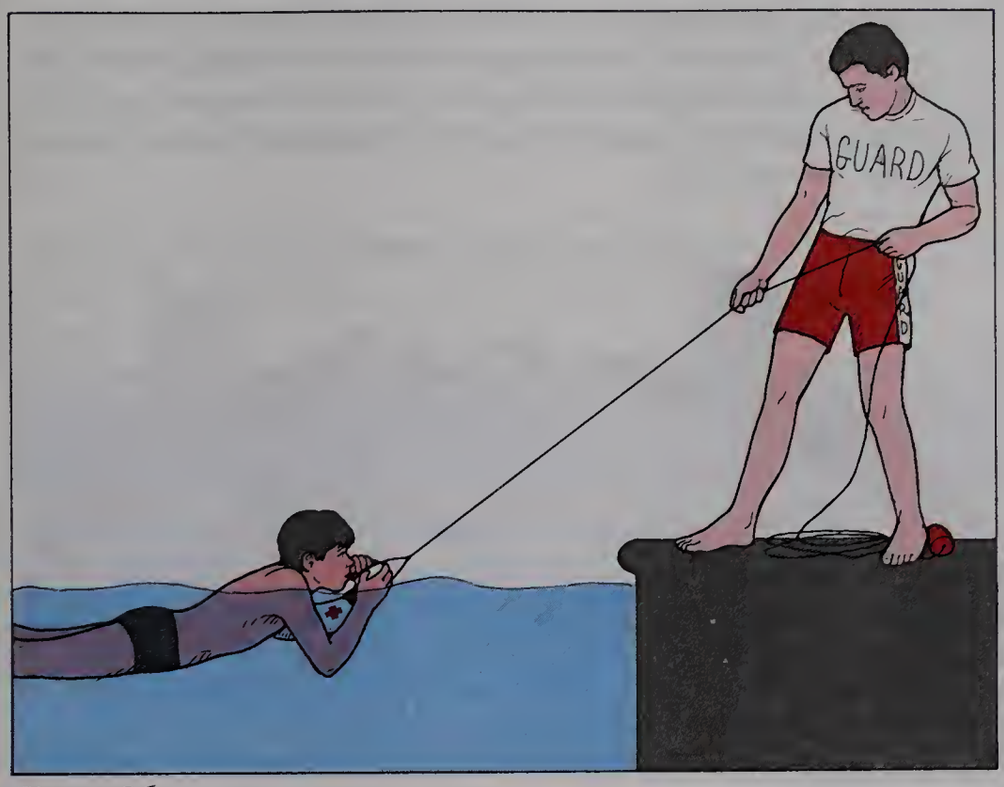


Figure 96
Pull victim to safety

When grasping the ring buoy, your fingers should hold the underside of the ring. Place the foot that is opposite your throwing hand forward across the end of the line in front of the "lemon." The coiled line hangs over the extended and open nonthrowing hand so that the line slides off over your fingertips.

The throw is normally an underhand toss, with the buoy aimed just beyond the victim. After the victim has a firm grasp on the buoy or line, pull the victim to safety, being careful not to jerk the buoy or line out of the victim's grip.

In a wind or current, the throw should be upwind or upstream of the victim, not in a direct line to the victim, so that the drift will bring the buoy to the victim's reach. If the throw is inaccurate, pull the line in, coil it, and throw it out again.

If distance, inaccuracy, or the prevailing wind conditions keep the buoy out of reach of the victim, you must quickly decide what alternatives exist. One alternative is to swim out with the buoy. When you are within arm's reach of the victim, push the buoy to the victim ***(Fig. 97).*** After the victim has a firm grasp on the buoy, tow him or her to safety by holding on to the buoy ***(Fig. 98)*** or by grasping the attached line. Talking and giving instructions to the victim will usually help to keep him or her calm and under control during the tow to safety.

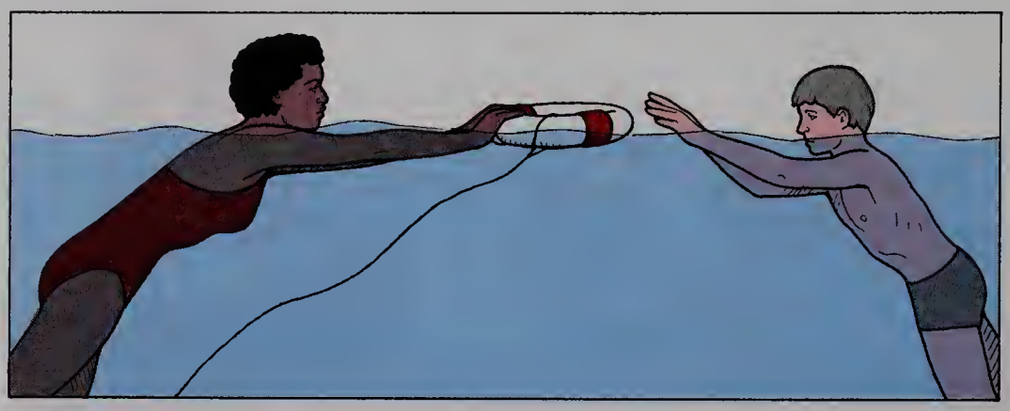


Figure 97
Push ring buoy to victim

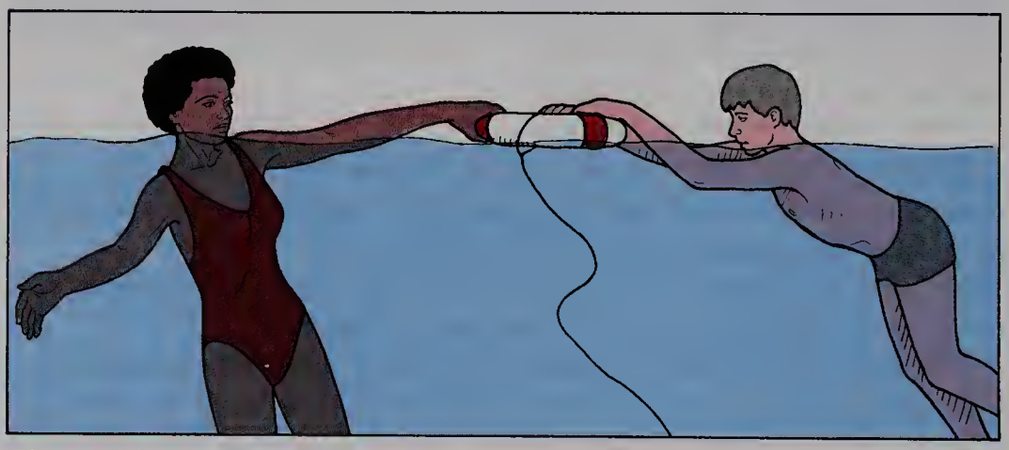


Figure 98
Tow victim to safety with ring buoy

Rescue Tube

The rescue tube is a versatile piece of equipment that adds safety and efficiency to **any** swimming rescue. It can be extended to the victim from a deck or can be hooked together at its ends to form a circle and then thrown. It can be towed in its open position by the lifeguard and extended to the victim for support. It also can be placed around a victim who is unconscious or too weak to hold on.

Entering the Water With a Rescue Tube

There are several correct ways to enter the water with a rescue tube:

- **Feetfirst entry–compact jump**—When entering the water with a rescue tube from a height such as a lifeguard stand or when water depth is shallow or unknown, use a compact jump. Put the strap of the rescue tube over your shoulder ***(Fig. 99).*** Then squeeze the tube tightly high on your chest and have the ends under both arms ***(Fig. 100).*** Carefully gather any excess line and hold it in one hand to avoid possible entanglement with objects on the deck or lifeguard stand. During the compact jump, your feet are together and flat, with the knees flexed in anticipation of possible contact with the bottom or a submerged object. The compact jump is the most versatile entry as it can be used in many situations.

Figure 99
Loop strap of rescue tube over shoulder

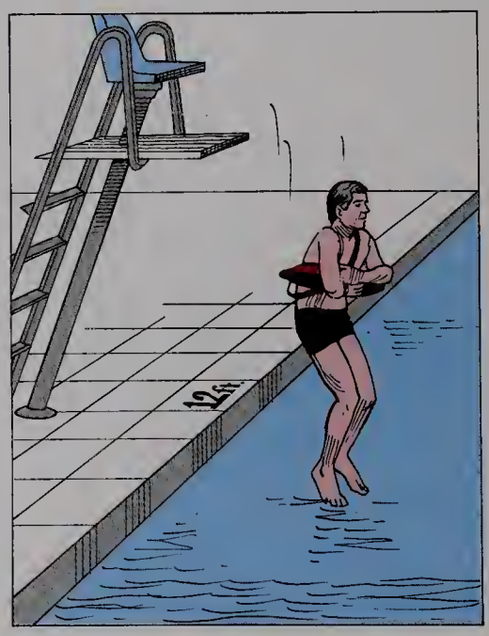


Figure 100
Jump from height with rescue tube

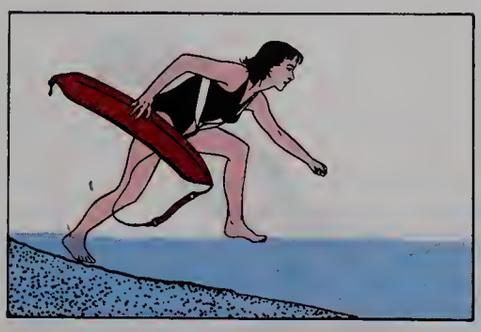


Figure 102
Run into water carrying rescue tube

- **Feetfirst entry–stride jump**—The stride jump entry is appropriate only in water known to be at least 5 feet deep and from poolsides or piers 3 feet in height or less. Put the strap of the rescue tube over your shoulder and hold the tube and all excess line to the side in one hand. Leap into the water with your legs held in a stride or scissors kick position, while leaning your upper body forward at an angle of approximately 45 degrees. Release the tube in midair over the water so your arms are free to assist the entry ***(Fig. 101).*** Your hands and arms can be fully extended behind or to the side of your body or crossed in front of your chest. Upon entry, squeeze or scissor your legs together to provide upward thrust and entry support. If your arms are extended behind your body or to the side, pull your hands forward and down upon entry. If your arms are crossed in front of your chest, press your hands down and move them outward in breaststroke fashion.

  Note: Serious knee injury could result if the stride jump is used in shallow water.

Figure 101
Stride jump with rescue tube

- **Beach entry**—At a beach, make a "run and plunge" entry. Put the strap of the rescue tube over your shoulder. Carrying the tube and excess line with one hand, run into the water, lifting your knees as high as possible with each stride in order to clear the water ***(Fig. 102).*** When deepening water slows you, make a shallow forward dive while letting go of the tube and swim toward the victim. Look up every few strokes to keep the victim in sight.

Approaches With a Rescue Tube

When you are carrying a rescue tube, you can approach the victim as follows:

- **Short approaches**—When the distance to the victim is short, for support and readiness, you can swim with the rescue tube in front of you against your chest. This position may be a follow-through from the feetfirst entry–compact jump. You can use a modified breaststroke or a crawl stroke. Always keep the victim in sight.
- **Long approaches**—When the distance to the victim is long, you can trail the rescue tube behind you. Use a normal breaststroke or crawl stroke. Look up every few strokes to keep the victim in sight.

Rescue of an Active Victim With a Rescue Tube

There are various ways to rescue active victims with a rescue tube. They include—

- **Use of the rescue tube in a throwing assist**—If a victim is struggling in the water close to safety, you can clip the ends of the rescue tube together. Throw the tube with one hand and hold on to the webbing loop with the other ***(Fig. 103).*** When the victim grasps the tube, you can easily and carefully pull the victim to safety.

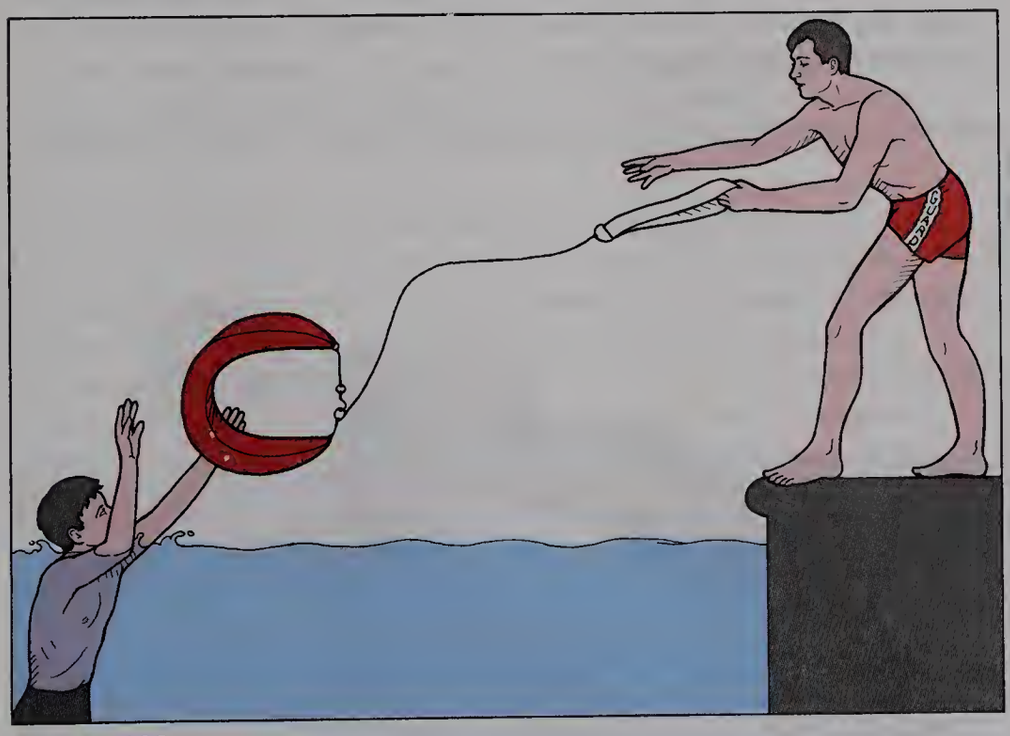


Figure 103
Hold webbing and throw rescue tube

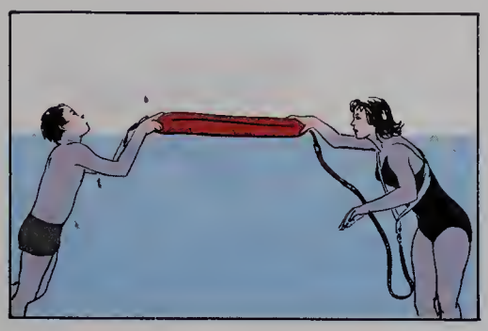


Figure 104
Extend rescue tube from ready position

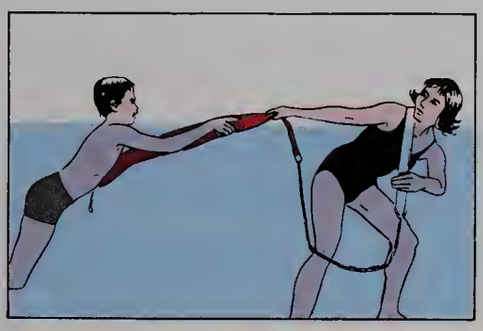


Figure 105
Hang on to strap and tow victim to safety

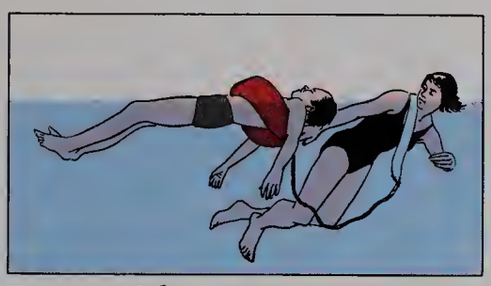


Figure 106
Rescue tube clasped around victim

- **Use of the rescue tube in a swimming assist**—(In most cases, the rescue tube is used without a line attached to shore.) When you are within 5 or 6 feet of the victim, stop and assume the ready position with your body vertical and your legs in a position to provide a supportive kick. Extend the rescue tube ***(Fig. 104)*** to the victim while speaking calm and reassuring words. Instruct the victim to grasp the tube. If the victim is too excited or panicky to take hold of the tube, simply grasp the victim's wrist and wrap his or her arm around the tube. Keep the victim at arm's length and hold on until the victim realizes that he or she is supported and calms down. In case this is not possible and the victim attempts to climb up the cord to grab you, you should be prepared to slip quickly out of the rescue tube shoulder strap. You and the victim can hold the tube together while moving to safety, or you can tow the victim with the shoulder strap in place and the victim holding on to the tube ***(Fig. 105).***
- **Clasping the rescue tube around a victim**—The tube can be used even if you determine that the victim does not have sufficient strength to hold on to it. In such a case, wrap the tube around the victim, clip the tube ends together, position the victim on his or her back, and tow the victim to safety ***(Fig. 106)*** by holding the clasped tube.
- **Clasping the tube around the lifeguard**—You can clip the tube around your upper body ***(Fig. 107)*** when you are 8 to 10 feet from the victim. Then approach, make contact, support the victim, and carry the victim to shore.

Figure 107
Rescue tube clasped around lifeguard

- **Use of the rescue tube with line attached**—A rescue tube may or may not have lines attached to shore, depending on your facility. If your rescue tube has a line, you can signal people on shore to tow you and the victim to safety. When a victim is towed to shore using a rescue tube attached to a shoreline, the victim seizes the tube and slides his or her head and chest about halfway up the tube, hanging on to the sides. The lifeguard slides to the rear and straddles the victim, reaching under the victim's arms to get a handhold on the sides of the tube ***(Fig. 108).*** When ready, the lifeguard signals to shore, and both the lifeguard and victim are pulled to safety.

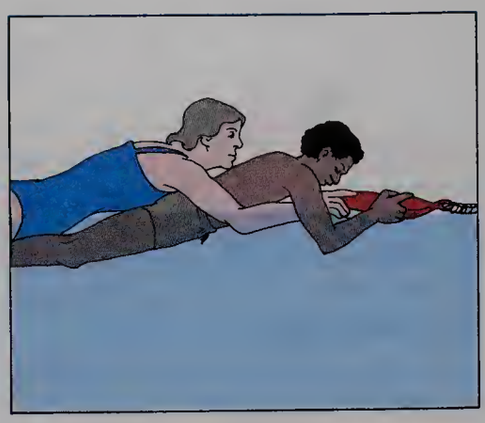


Figure 108
Victim and lifeguard being towed

Rescue Buoy

Rescue buoys come in different sizes, and the technique for using them is similar to that for the rescue tube. They provide support to a person who is in trouble in the water. The victim can hold on to the buoy and be towed back to safety. In an emergency situation with an unconscious victim, the lifeguard may tie the buoy to the victim, utilizing the towline.

Rescue Board or Surfboard

The lifeguard should be thoroughly skilled in paddling and maneuvering a rescue board. Perfect your board-handling and rescue skills in quiet water before attempting to use a rescue board in rough water.

When you are properly trained, you will find the rescue board fast, stable, and easy to maneuver. You must be able, in some instances, to move the board safely through a crowded swimming area to reach a victim. In-service training at waterfronts using rescue boards must stress the proper handling of the rescue board.

You may use the rescue board to patrol the outer boundaries of a swimming area. Rescue boards should also be kept on the beach near the lifeguards for easy access in an emergency.

Launching the Board

The simplest method of launching a rescue board is to place it in the water at about knee depth and hold on to the sides about midway, pushing the board in front of you. While moving forward, get on the board, positioning your knees shoulder-width apart, and paddle in a kneeling position. For more stability, you can lie on the board and paddle to a victim, but kneeling is generally more efficient for longer distances.

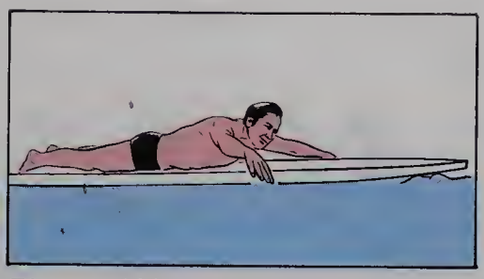


Figure 109
Approach victim

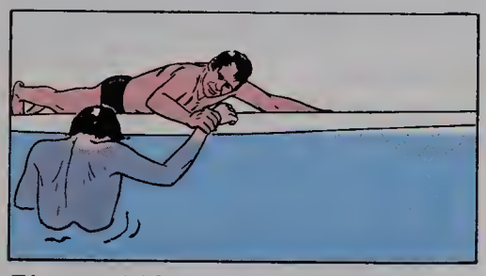


Figure 110
Grasp victim's wrist

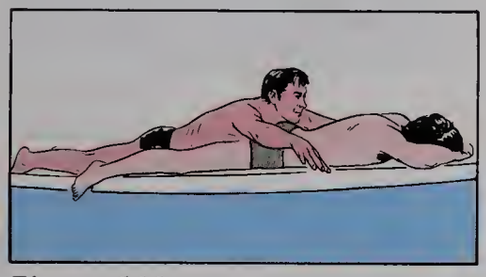


Figure 111
Stroke or paddle to shore

If you have enough strength and skill, you may attempt a quicker launching method. Hold the board vertically in front of you. Run into the water to knee depth, crouch, and drop the board somewhat forward and flat on the surface. Without losing momentum, quickly get onto the board in a kneeling position, knees shoulder-width apart, or lower your body to a prone position and paddle out toward the victim.

Approaching the Victim

In calm waters, simply point the board toward the victim and paddle, using either the crawl arm stroke or the butterfly arm stroke ***(Fig. 109).*** Keep your head up and your eyes on the victim.

If you use proper timing, you can ride through moderate waves. When waves are about to break on you, flatten out on the board, head down, and hold tight to the sides of the board.

Rescue of a Victim Who Is Able to Get on the Board

When using a board to rescue a tired swimmer, approach the victim from the side while you paddle. Grasp the victim's nearer hand or wrist and slide off the board on the side opposite the victim ***(Fig. 110).***

Help the victim extend his or her arms across the board and encourage the victim to relax and rest until calm. While the victim is resting, turn the board toward shore. Steady the board while you are in the water. The victim then gets aboard by swimming onto the board while moving toward the front of the board.

When the victim is on the board lying flat on his or her stomach, get on the board from behind. Lie down between the victim's legs. Your own legs may be off the board in the water and can be spread and used for additional stability. Adjust both your position and the victim's so that the front of the board is up high enough to clear the water slightly. Stroke or paddle the board to shore ***(Fig. 111).*** The return to shore should be unhurried.

Rescue of a Victim Who Is Unable to Get on the Board

Sometimes you may encounter a panicky or tired victim who is unable to get on the board. Approach a panicky or tired victim from the side. Grab the victim's wrist and slide off the board on the side opposite the victim, flipping the board over at the same time ***(Fig. 112).*** The action of flipping the board will bring the victim partially onto the board. You will then be holding the victim's wrist across the board, with the board between you and the victim ***(Fig. 113).*** At this point, calm the victim and explain how you are going to help and what the victim will have to do.

While protecting the victim's head, place the victim's arms across the board. While holding the victim's arms with one hand, reach across the board and roll it over ***(Fig. 114).*** This will roll the victim's chest across and onto the board. Then rotate the victim so that the victim is lying lengthwise in the middle of the board with his or her head toward the front of the board ***(Fig. 115).*** Next, swim onto the board behind the victim, adjusting your position and the victim's for proper balance. Assume a prone paddling position and return to shore ***(Fig. 116).***

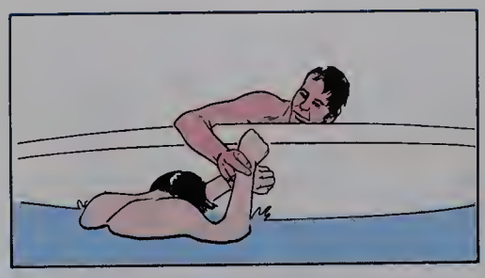


Figure 112
Grab victim's wrist; slide off board

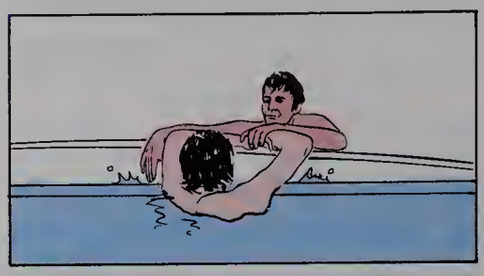


Figure 113
Board between rescuer and victim

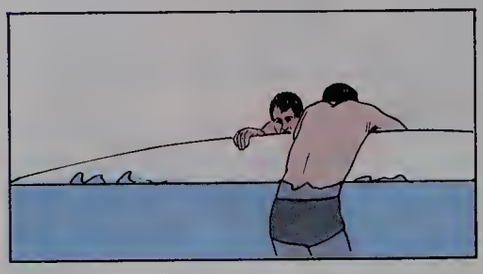


Figure 114
Roll board over

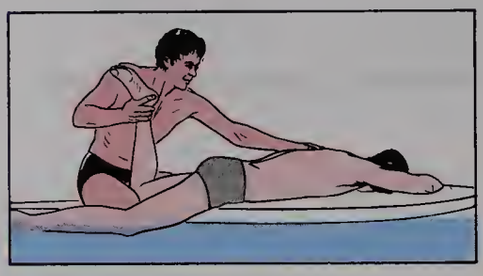


Figure 115
Position victim

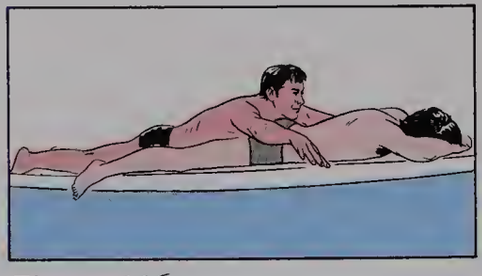


Figure 116
Paddle to shore

Rescue Breathing in the Water

Shallow-Water Rescue Breathing Without Flotation

If the victim who is in shallow water is not breathing, position the victim on his or her back so that the head is near one of your arms. Call for help. With the victim positioned with his or her head to your left, slide your right hand between the victim's right arm and side, and under his or her upper back, keeping your palm turned up to provide support (do-si-do position). Place your left hand on the victim's forehead, open the airway, and check for breathing. If the victim is not breathing, pinch the nostrils between your index finger and thumb, tilt the head, and give 2 full breaths. Check for a pulse. If there is a pulse but the victim is still not breathing, continue rescue breathing. If there is no pulse, remove the victim from the water immediately and begin cardiopulmonary resuscitation (CPR).

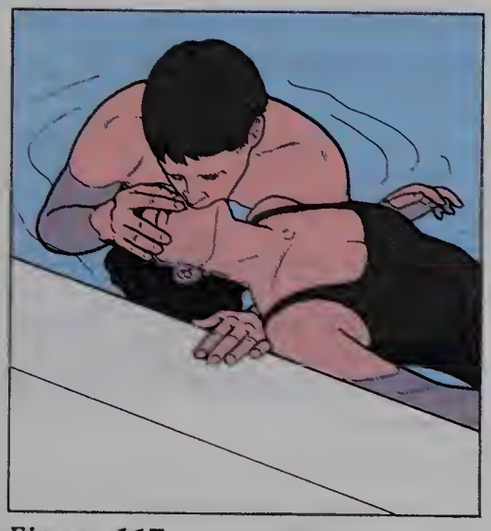


Figure 117
Rescue breathing in deep water

Deep-Water Rescue Breathing Without Flotation

Deep-water rescue breathing without flotation equipment is extremely difficult. A well-conditioned lifeguard helping a small victim may be able to open the airway and give 2 full breaths. However, sustained rescue breathing may not be possible and could delay getting the victim to safety.

If the victim cannot be immediately removed from the water or brought to shallow water, take the victim to the edge of the pool or other means of support. Grab this support with one hand. Call for help. At a pool, pull the victim in close to the side of the pool or deck, place both your feet on the wall or support, and position the victim between you and the wall. Support the victim on one of your knees. Reach your right arm between the victim's right arm and side, or your left arm between the victim's left arm and side. Slide that same arm under the victim's upper back and grasp the side of the pool or deck (do-si-do position) ***(Fig. 117).*** Place your other hand on the victim's forehead, open the airway, and check for breathing. If the victim is not breathing, pinch the nostrils between your index finger and thumb, tilt the head, and give 2 full breaths. Check for a pulse. If there is a pulse but the victim is still not breathing, continue rescue breathing. If there is no pulse, remove the victim from the water and begin cardiopulmonary resuscitation (CPR).

Deep-Water Rescue Breathing With Flotation

If the victim who is in deep water is not breathing when you reach him or her, start rescue breathing as soon as possible. You can start rescue breathing in deep water if the victim is wearing a lifejacket (PFD) or a buoyancy compensating device (BCD), or if you use a rescue board, rescue tube, or rescue buoy for flotation. Information on how to give rescue breathing using a rescue tube, rescue buoy, or rescue board follows:

- **Rescue breathing with a rescue tube**—There are several methods for administering rescue breathing when you are making a rescue with a rescue tube:
  - **Front-surface approach**—Hold the tube in front of you with one hand. Reach across the tube with your other hand and grasp the victim's opposite (right to left, left to right) wrist ***(Fig. 118)***. Then execute the front-surface approach by grasping the victim's wrist with your hand. Begin kicking for momentum; pull the victim's arm toward you while rotating the victim's wrist for leverage and turning your palm. The pull and turn should roll the victim over onto his or her back. As the victim is turning faceup ***(Fig. 119)***, submerge

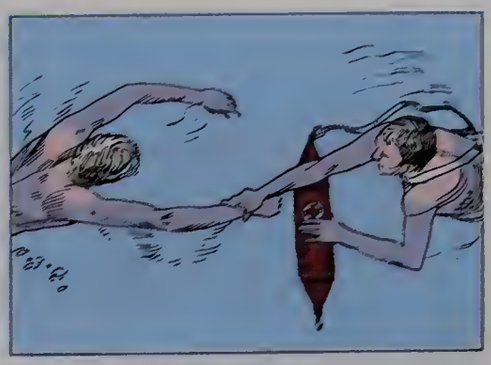


Figure 118
Reach across tube; grasp victim's right wrist

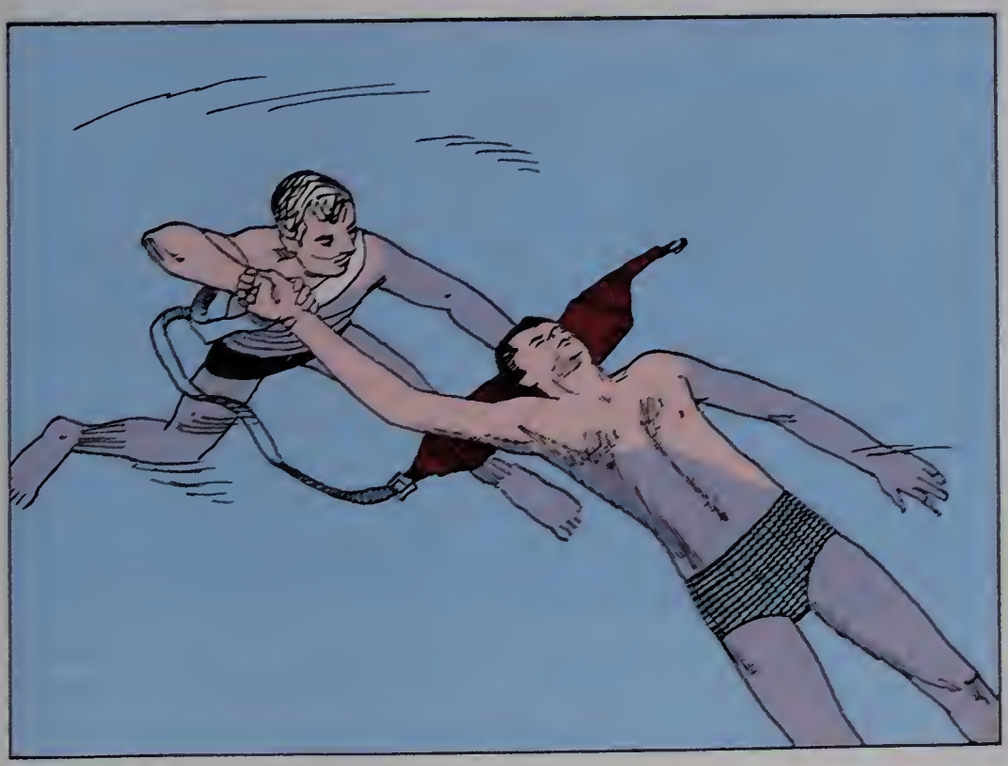


Figure 119
Submerge tube

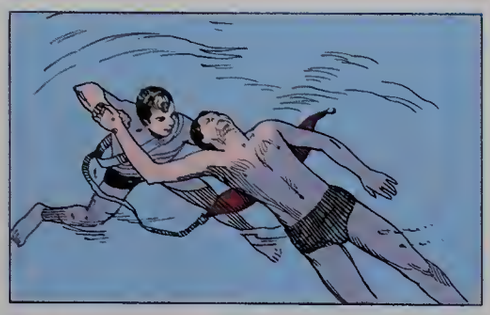


Figure 120
Tube rests across victim's back just below shoulders

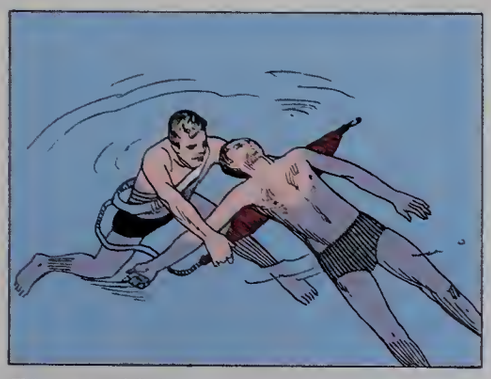


Figure 121
Secure victim in do-si-do position

the tube with your left hand and extend your left arm and the tube under the victim. The tube should come to rest across the victim's back, just below the shoulders ***(Fig. 120).*** Release the victim's right wrist, reach over the victim's right shoulder ***(Fig. 121),*** and hold the victim in a do-si-do position. In this position, you are securing both the victim's right arm and the rescue tube with your own right arm and hand ***(Fig. 122).*** Then release the rescue tube with your left hand and use that hand to pinch the victim's nose and extend the victim's neck to open the airway. Begin rescue breathing.

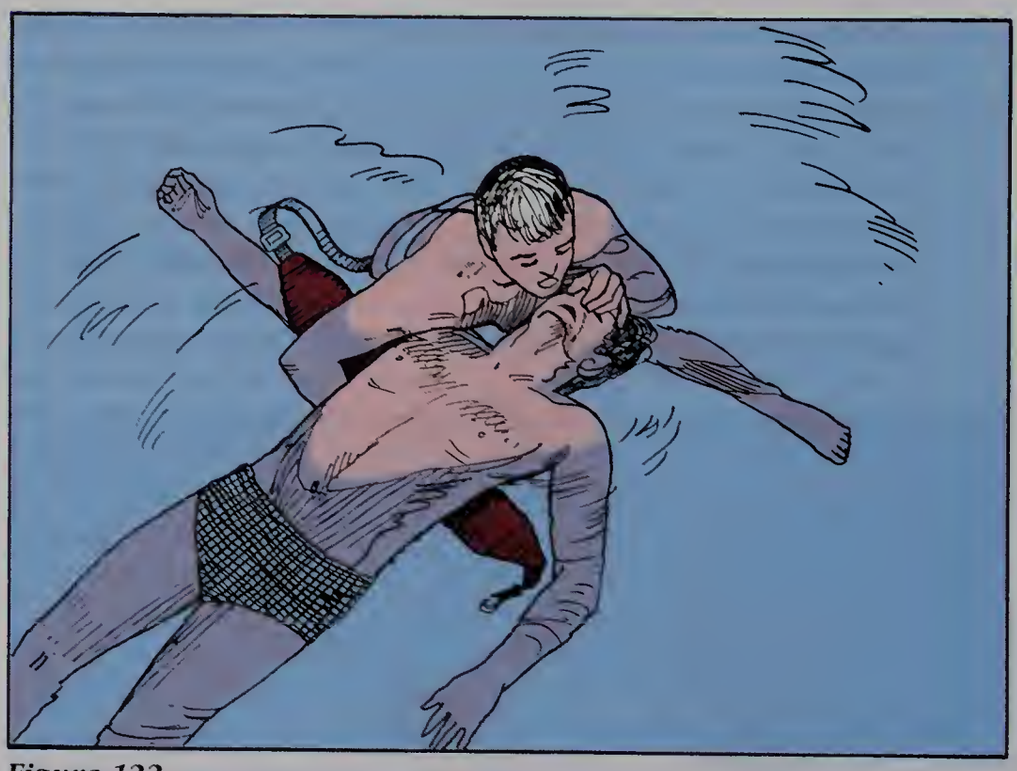


Figure 122
Secure victim's right arm and rescue tube with your right arm and hand

- **Front-surface approach—alternate method**—Turn the victim and position the tube as described above for the front-surface approach.

  Once the victim is turned and the tube is placed under the victim's back, release the victim's right wrist. Secure the tube to the victim by wrapping the tube around the victim and snapping the hook in the center of the victim's chest ***(Figs. 123 and 124).*** You can now move to either side of the victim and hold the victim in the do-si-do position ***(Fig. 125).*** Pinch the victim's nose and open the airway. Begin rescue breathing.

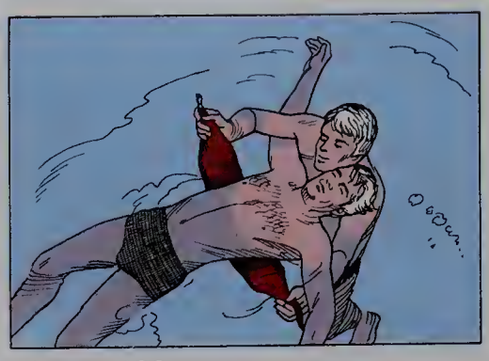


Figure 123
Wrap tube around victim

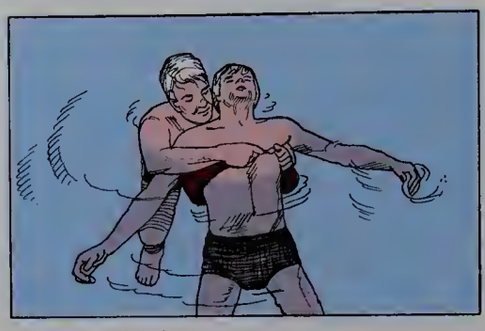


Figure 124
Snap hook in center of victim's chest

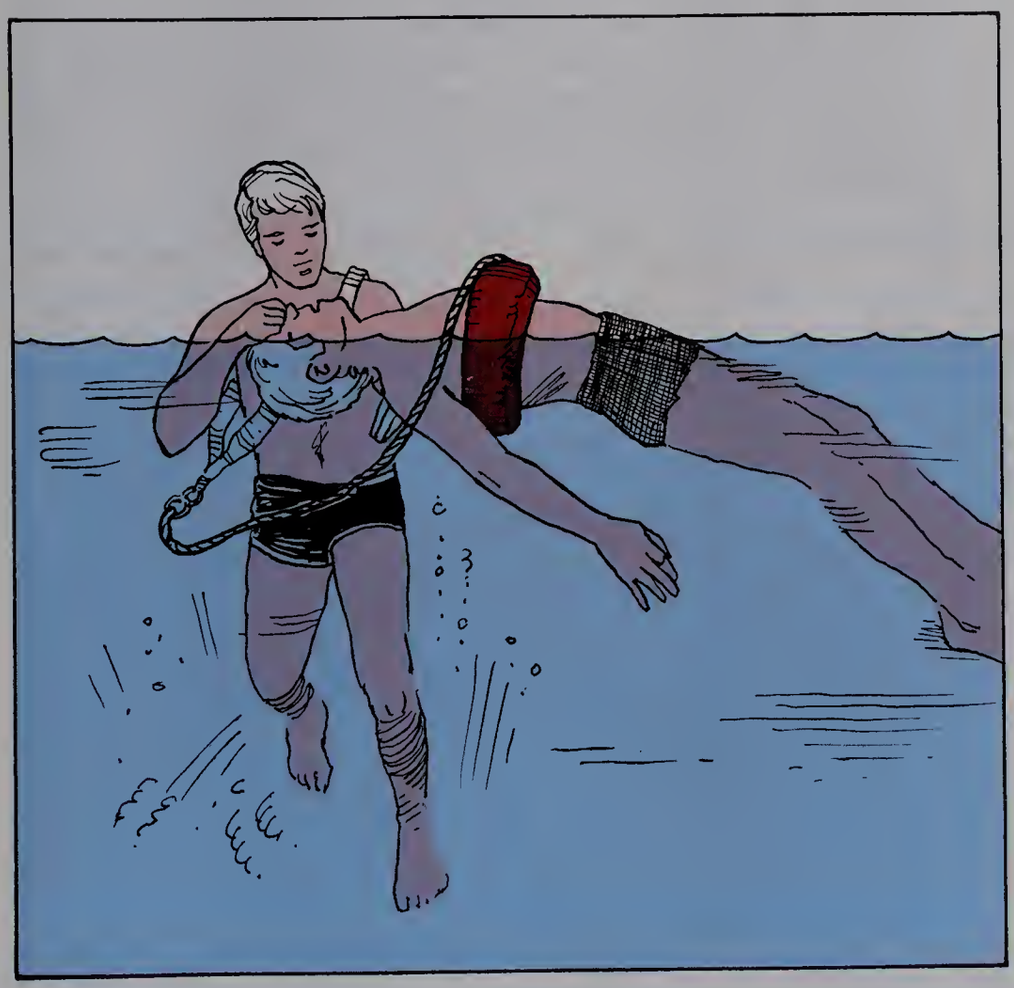


Figure 125
Assume do-si-do position

Figure 126
Bring hand up under victim's left arm; grasp arm above elbow

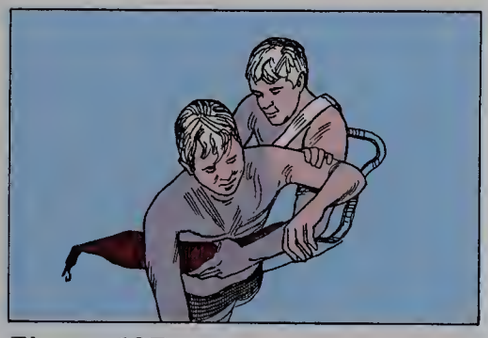


Figure 127
Position tube at center of victim's chest

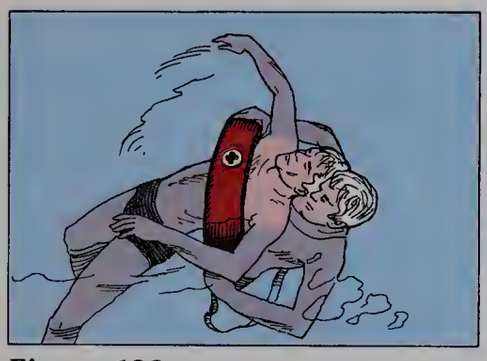


Figure 128
Wrap tube around victim under victim's arms

- **Turn**—(The victim is passive and facing you.) Hold the rescue tube with your left hand in the center of the tube; your left forearm is parallel to the tube. Bring your right hand up under the victim's left arm and grasp that arm above the elbow with your thumb to the inside of the arm ***(Fig. 126).*** A simultaneous movement of pushing the victim's left arm up and moving it across in front of you will turn the victim. As the victim is turning, move the rescue tube with your left hand and position the tube at the center of the victim's chest ***(Fig. 127).*** Once the victim is completely turned around, you can release the victim's left arm.

  Wrap the rescue tube around the victim, under the victim's arms ***(Fig. 128).*** Snap the tube with the buckle behind the victim. You can now move to either side of the victim and assume the do-si-do position ***(Fig. 129).*** Use your free hand to pinch the victim's nose and open the airway. Begin rescue breathing.

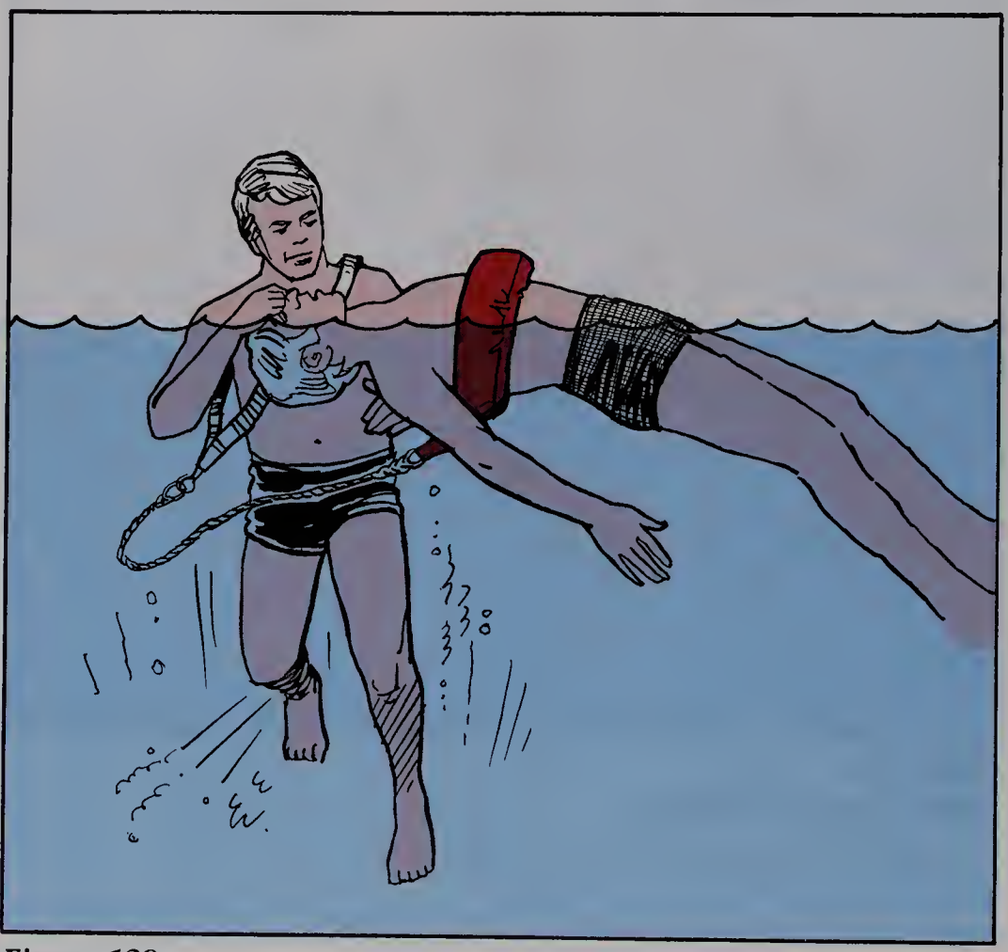


Figure 129
Move to either side of victim and assume do-si-do position

- **Rear approach**—Hold the rescue tube with your left hand. Keep your forearm parallel to the tube ***(Fig. 130)***. As you pull the victim back using an armpit tow, reach around with your left arm and position the tube in front of the victim ***(Fig. 131)***. Wrap the tube around the victim and snap it, with the buckle at the center of the victim's back ***(Fig. 132)***. Move to either side of the victim and assume a do-si-do position. Use your free hand to pinch the victim's nose and open the airway ***(Fig. 133)***. Begin rescue breathing.

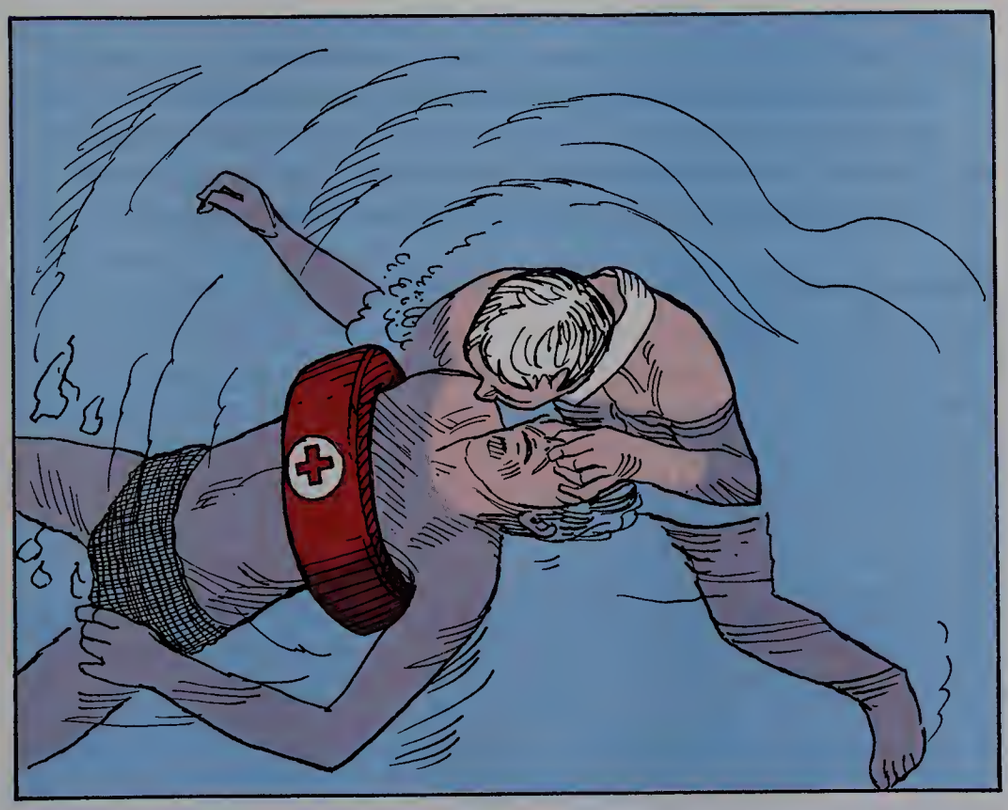


Figure 133
Use free hand to pinch victim's nose and open the airway

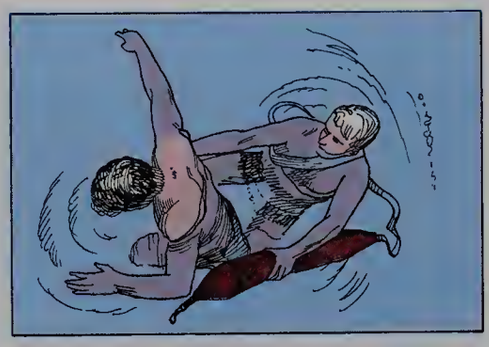


Figure 130
Hold rescue tube with left hand, left forearm parallel to tube

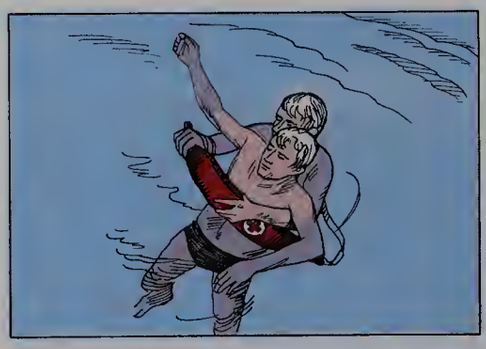


Figure 131
Reach around with left arm; position tube in front of victim

Figure 132
Wrap tube around victim; snap buckle at center of back

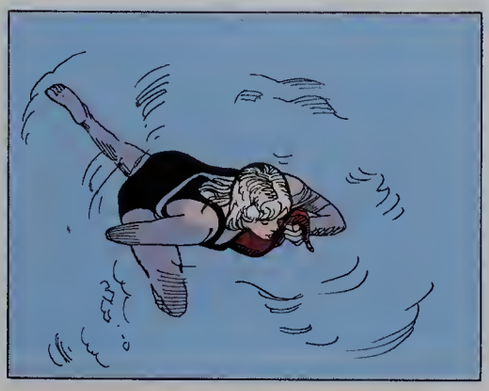


Figure 134
Slide tube down between legs

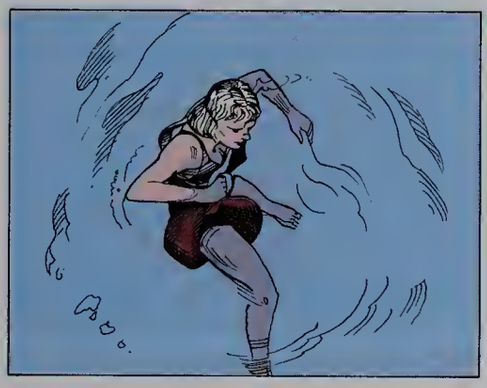


Figure 135
Snap ends of tube together and straddle tube

- **Straddle the tube**—Before making contact with the victim, stop and snap the ends of the rescue tube together. Step through the ring with one leg. The tube can be held in this position by squeezing your legs together.

  If the tube is one of the thick models, it may be difficult for you to submerge the tube after the ends are snapped together. An alternate method for straddling the tube is for you to lie on the tube with the tube parallel to your body. Slide the tube down between your legs ***(Fig. 134)*** until you can sit up and straddle the tube. Then snap the ends of the tube together ***(Fig. 135).***

  Once you have the tube properly positioned, move to the victim and use any procedure to turn the victim to a faceup position. Assume the do-si-do position on either side of the victim. Use your free hand to pinch the victim's nose and open the airway ***(Fig. 136).*** Begin rescue breathing.

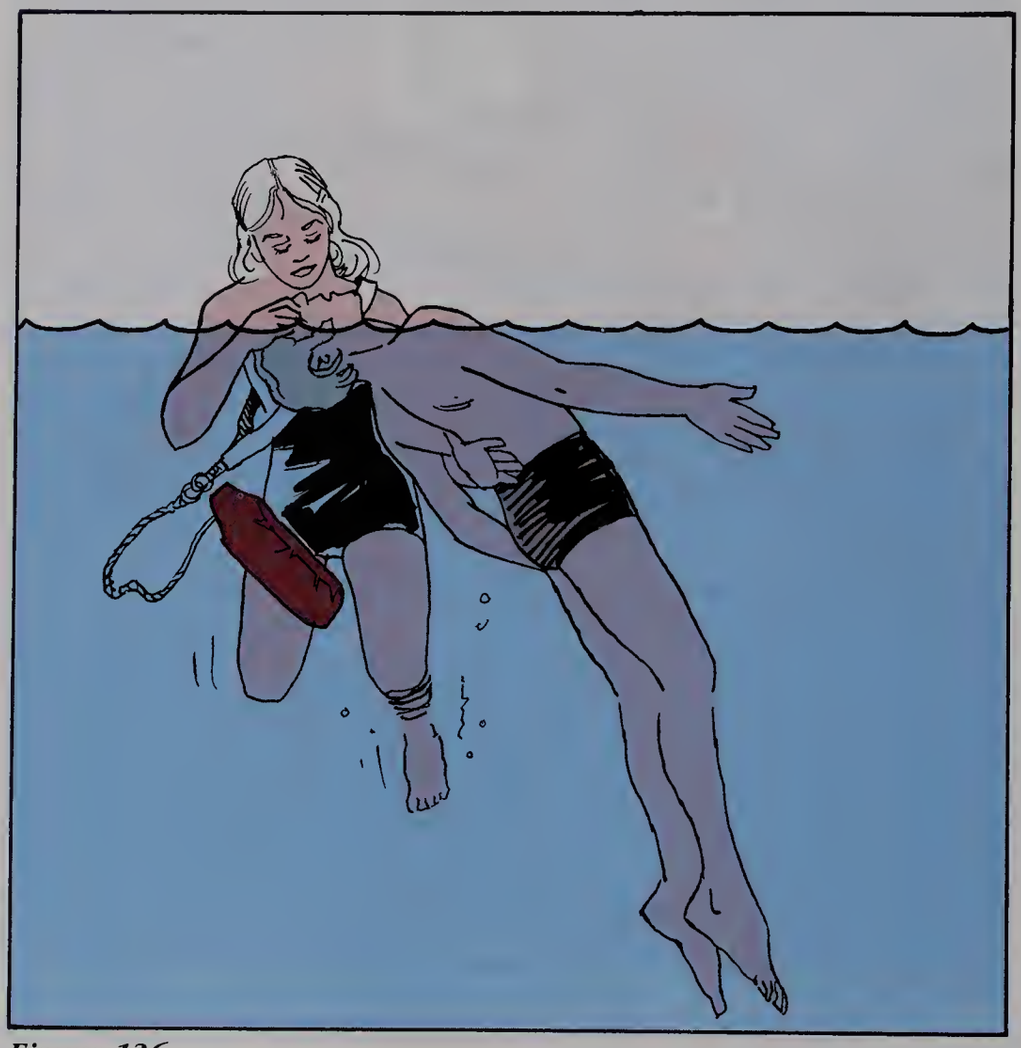


Figure 136
Pinch victim's nose and open the airway

- **Rescue breathing with a rescue buoy**—Although rescue buoys come in different sizes, they all will provide support to a victim. However, rescue tubes are a little more versatile and easier to use. You may use the buoy to provide flotation while administering rescue breathing in the following ways:
  - **Front-surface approach—buoy to victim's back**—Hold the buoy with your left hand, holding one of the handholes on the far side of the buoy. Position the buoy between you and the victim. Reach over the buoy with your right hand and grasp the victim's right wrist ***(Fig. 137).*** Then execute the front-surface approach. As you turn the victim to a faceup position, submerge the rescue buoy with your left hand and arm. Extend the left arm as you submerge the buoy. This movement will force the buoy under the victim. Place the buoy across the victim's back, just below the shoulder blades ***(Fig. 138).*** This position will help to open the victim's airway for rescue breathing.

    After the buoy is positioned, release the victim's right wrist, reach over the victim's right shoulder, and assume the do-si-do position on the right side of the victim. Grasp the rescue buoy with your right hand beneath the victim. Then release the buoy with your left hand and use that hand to pinch the victim's nose and open the victim's airway ***(Fig. 139).*** (During this procedure, the buoy may slip to the opposite side of the victim. If this happens, maintain a grasp on the buoy and continue to support the victim across your arm.) Begin rescue breathing.

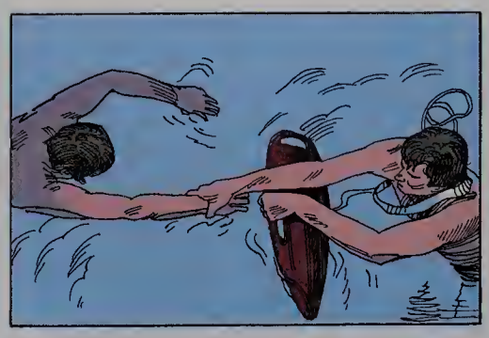


Figure 137
Reach across buoy with right hand; grasp victim's right wrist

Figure 138
Place buoy across victim's back just below shoulder blades

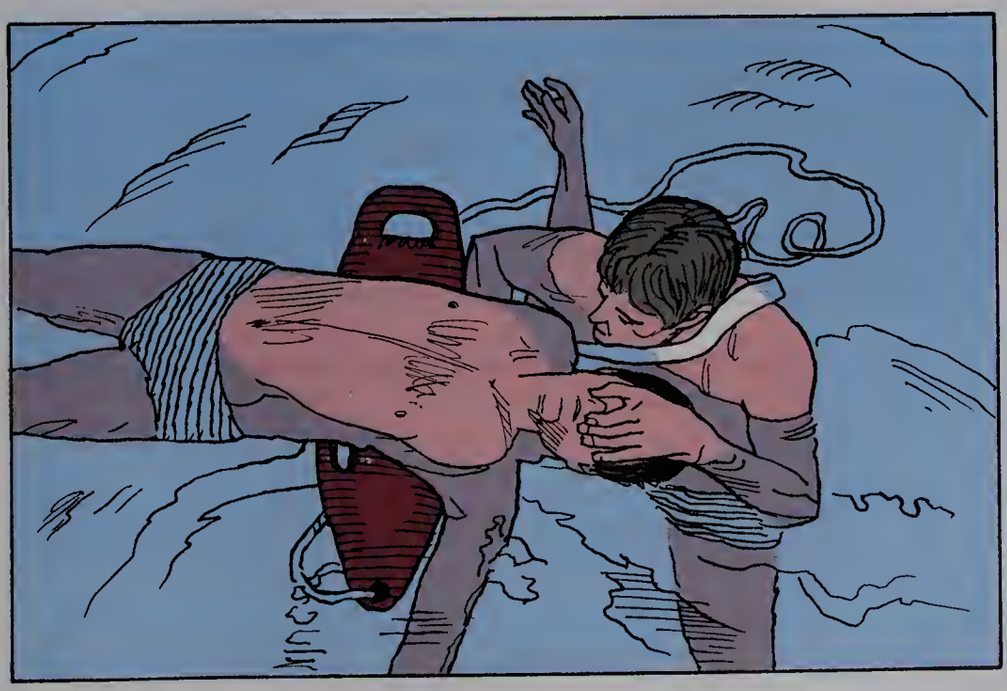


Figure 139
Release buoy; pinch victim's nose and open the airway

Figure 140
Buoy floats behind lifeguard

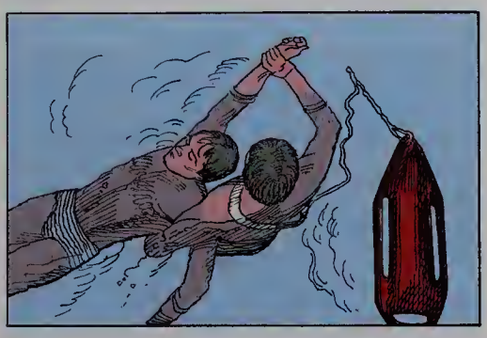


Figure 141
Assume do-si-do position using left arm on victim's left side

Figure 142
Submerge buoy with right hand and grab with left hand under victim

- **Front-surface approach—buoy to victim's side**—Execute the front-surface approach using your right hand to turn the victim. The buoy is floating behind you ***(Fig. 140).*** Once the victim is turned to a faceup position, assume the do-si-do position using your left arm on the victim's left side ***(Fig. 141).***

  Release the victim's right wrist. Using your right hand, grasp the buoy and submerge it enough to allow you to grab it with your left hand, which is still under the victim ***(Fig. 142).*** Allow the buoy to slide to the victim's right side. Release the buoy with your right hand. Use your right hand to pinch the victim's nose and open the airway ***(Fig. 143).*** The victim will be supported on your left arm. Begin rescue breathing.

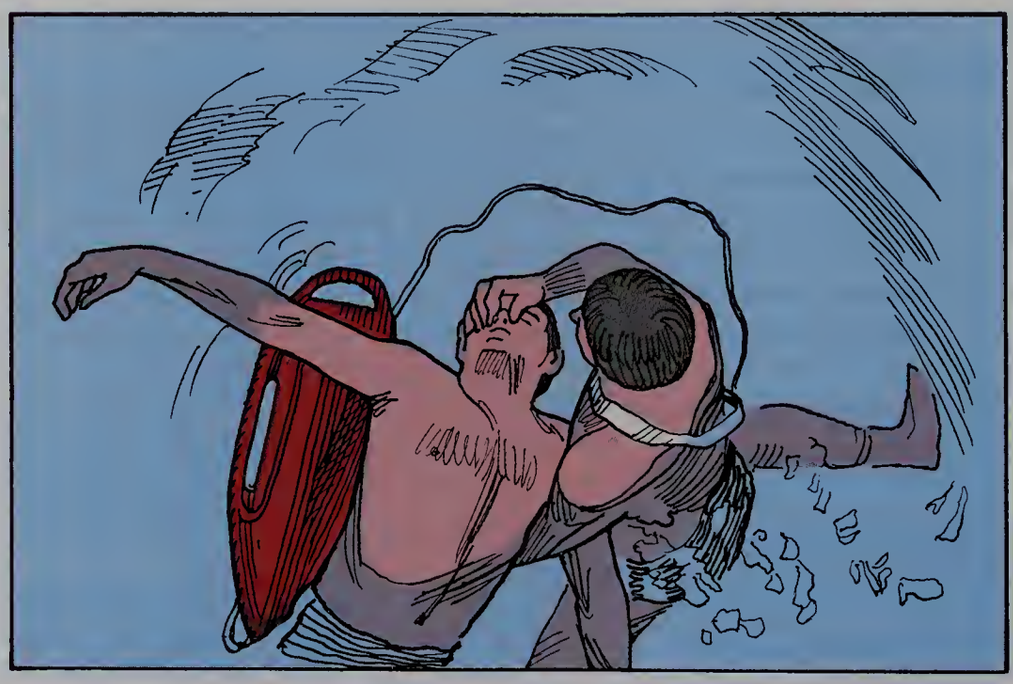


Figure 143
Release buoy; use right hand to pinch nose and open the airway

- **Rear approach**—After approaching with the buoy floating behind you, pull the victim onto his or her back ***(Fig. 144)*** using an armpit tow to the right side while assuming the do-si-do position using your left arm on the left side of the victim. Release the victim with your right hand. Grasp the buoy ***(Fig. 145)*** with your right hand and submerge it beneath the victim to a point where you can grab it with your left hand. Allow the buoy to slide to the victim's right side. Release the buoy with your right hand. Use your right hand to pinch the victim's nose and open the airway ***(Fig. 146).*** Begin rescue breathing.

Note: The front-surface approach—buoy to victim's side—and the rear approach are the only approaches in which the victim is contacted and placed in the do-si-do position before the equipment is prepared for use.

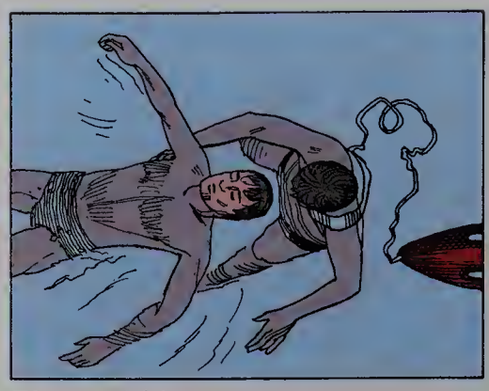


Figure 144
Pull victim onto back

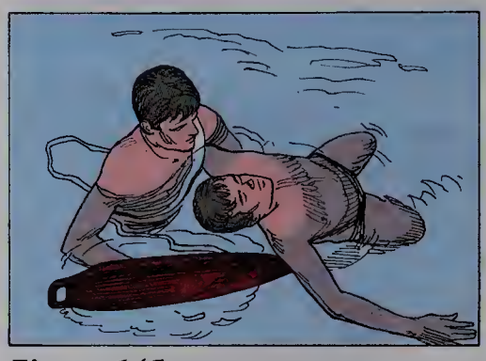


Figure 145
Use right hand to grasp buoy

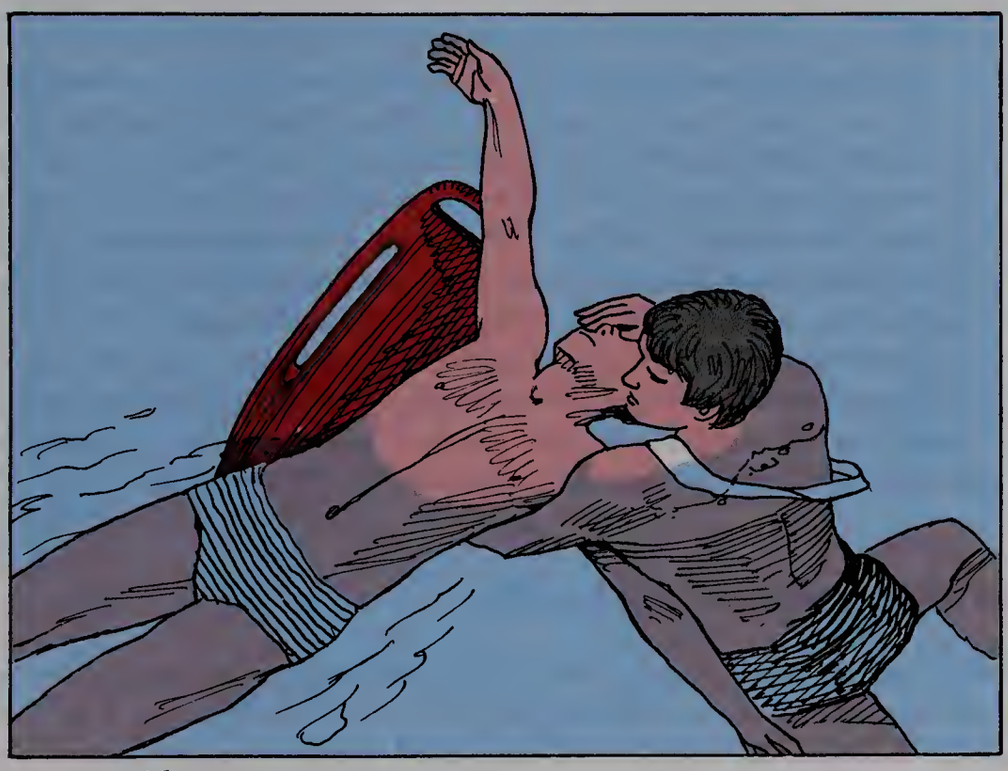


Figure 146
Use right hand to pinch victim's nose and open the airway

Figure 147
Lie across rescue board in prone position; support victim in do-si-do position

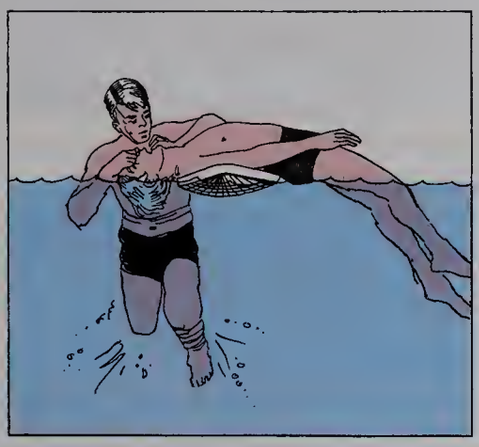


Figure 148
Pinch nose with one hand; hold on to board or victim with other hand

- **Rescue breathing with a rescue board**—Lifeguards should practice using a rescue board while giving rescue breathing to a victim. Two methods of administering rescue breathing from a rescue board are—
  - **Lifeguard on the board**—Lie across the rescue board in a prone position ***(Fig. 147),*** supporting the victim in a do-si-do position in the water. The do-si-do position may be taken from either side of the victim, but it is described here from the right side. Slide your right arm between the victim's right arm and body. Place your left hand on the victim's forehead, open the airway, and check for breathing. If the victim is not breathing, pinch the nostrils between your index finger and thumb, tilt the head, and give 2 full breaths. Check for a pulse. If there is a pulse but the victim is still not breathing, continue rescue breathing. If there is no pulse, remove the victim from the water immediately and begin CPR.
  - **Victim on the board**—Position the victim on his or her back on the rescue board. The victim's head and neck should be off the board and the shoulders on the board. This position extends the neck and opens the airway. From your position in the water alongside the board, pinch the victim's nose with one hand and hold on to the rescue board or the victim with the other hand ***(Fig. 148).*** Begin rescue breathing.

Other methods of using a rescue board while administering rescue breathing may be used, depending on the size and condition of the victim, the condition of the water, and the size, strength, and experience of the lifeguard. Practicing various positions and procedures will save time and will allow for easier administration of rescue breathing during an emergency.

Multiple-Victim Rescues

When two or more victims are in need of assistance, provide flotation to support the victims until back-up lifeguards arrive. A rescue buoy, rescue tube, or rescue board may be used for flotation. After it is provided, attempt to calm the victims.

Note: The large rescue buoys are especially useful for multiple-victim rescues. Convenient handholds on a large buoy can easily support 2 or 3 people.

Rescues Without Equipment

The lifeguard is responsible for the safety of the facility users first. A lifeguard must remember always to use the form of rescue that affords the fastest, safest, and most efficient rescue possible. Equipment rescues are usually the most appropriate forms of rescue for a lifeguard. Today every pool, water park, lakefront, and riverfront should have the proper rescue equipment. Trained off-duty lifeguards, however, are often around the water in areas that do not have rescue equipment. It is not uncommon for a lifeguard to be called upon to provide a rescue in an unsupervised aquatic environment.

A lifeguard places himself or herself at a greater risk with any type of body-contact rescue. (A body-contact rescue is a rescue attempted without equipment.) Distressed or tired swimmers may suddenly become actively drowning victims. The skills described below for rescues without equipment are designed to minimize the risk as much as possible should you ever be called upon to make a body-contact rescue; these skills should not be confused with those for equipment rescues.

Remember, any object that provides a barrier between you and a victim dramatically increases the safety of the rescue even though professional rescue equipment may not be available. You can avoid direct contact with the victim by using available equipment such as a kickboard, personal flotation device (PFD), buoyant cushion, or other similar buoyant object ***(Fig. 149).*** The victim can then be encouraged to hang on to the object and kick or be pulled toward safety.

Remember that reaching and throwing assists always provide the safest form of rescue.

Figure 149
Free-floating support

You can also extend your reach with a wading assist. You may advance into the water to about chest depth with reasonable safety. Lean back toward shore before reaching out to grasp the victim ***(Fig. 150).*** Extending a flotation device, pole, or shepherd's crook is the preferred method of assisting the victim.

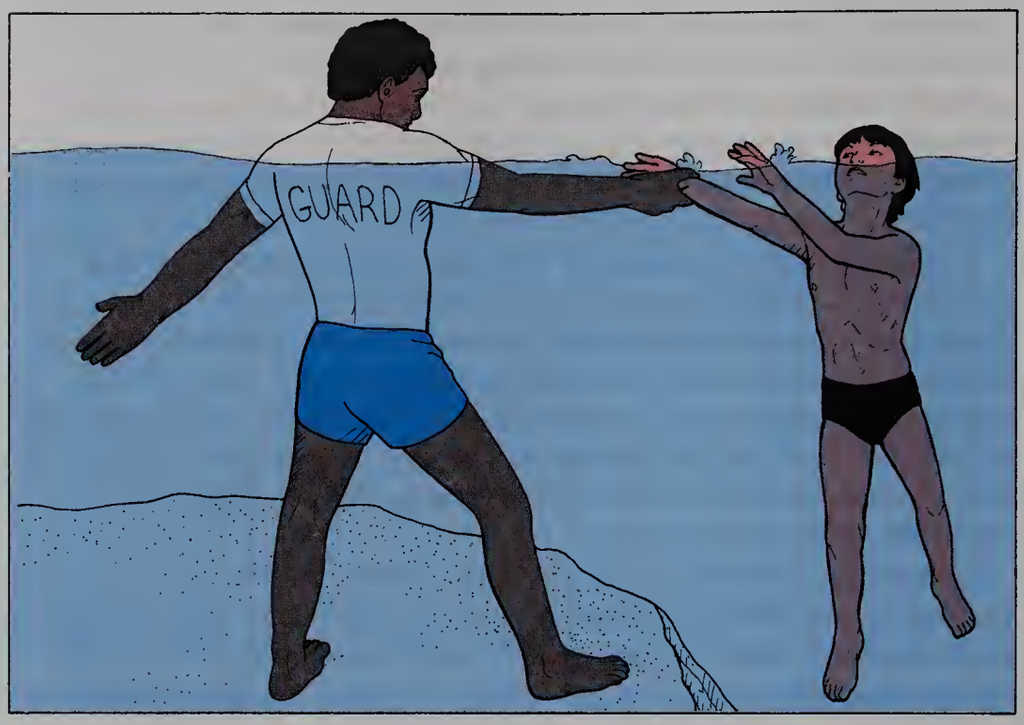


Figure 150
Wading assist

Approaches

There are several approaches you can use to get to a victim when you are making a rescue without equipment:

- **Swim or dive to the rear**—You can rescue an active victim by diving and swimming underwater to the rear of the victim or by swimming on the surface around and behind the victim. Do not dive from a dock or boat if the water is less than 5 feet deep. When rescuing a victim on the surface, perform an appropriate entry and swim quickly to a position immediately behind the victim ***(Fig. 151).*** Assume the ready position, scull closer to the victim, and bring the victim level in the water. Use a cross-chest carry and take the victim to the closest point of safety. If the return distance with the victim is greater than 40 feet, use a single- or double-armpit tow. In the event of a spinal injury, use the appropriate techniques described in Chapter 12, "Spinal Injury Management."

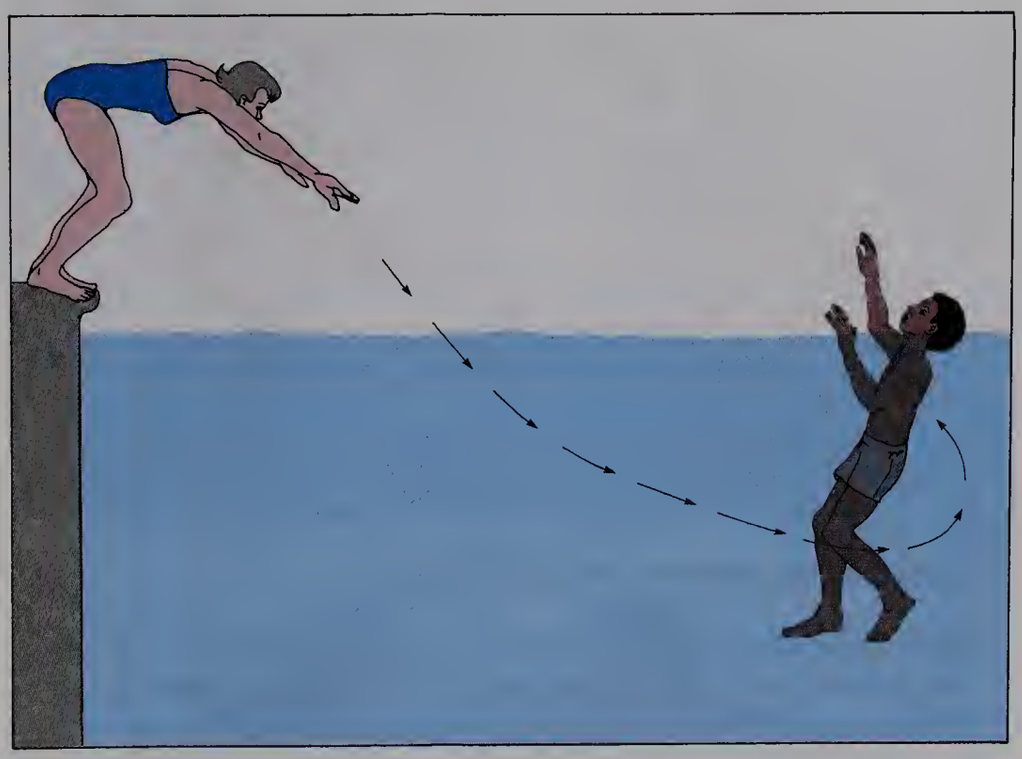


Figure 151
Swim or dive behind victim

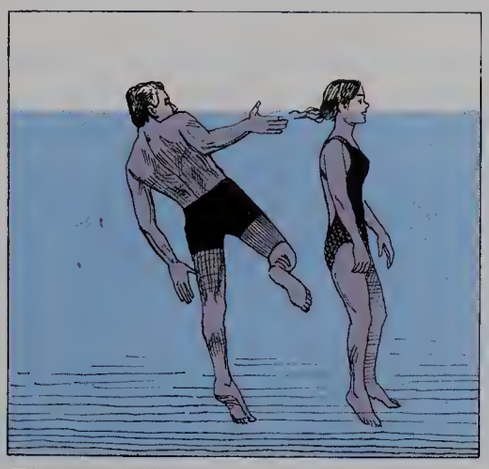


Figure 153
Assume ready position

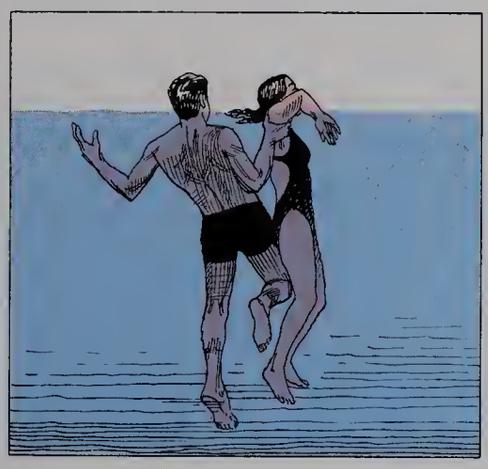


Figure 154
Grasp victim's armpit

- **Front surface approach**—If a victim is facedown at or near the surface of the water, a front surface approach should be used. Enter and swim quickly to within 6 feet of the victim. Stop and assume the ready position. In this position, scull to the victim and grasp the victim's wrist (your right hand on the victim's right wrist or left hand to left wrist). Begin kicking for momentum and pull the victim's arm toward you while rotating the victim's wrist for leverage and turning your palm. The pull and turn will roll the victim over onto his or her back ***(Fig. 152).*** Head to safety using the wrist tow, the cross-chest carry, or any other appropriate tow (see pages 144–146).

Figure 152
Grasp underside of wrist; roll victim onto back

- **Rear approach**—This approach is used when the victim is on the surface (active or passive) or near the surface. Enter the water and quickly approach to within 6 feet of the victim. Assume the ready position ***(Fig. 153).*** Which rescue technique you use depends on the situation. If the return distance is over 40 feet, use a single-armpit tow (see page 143). If the return distance is less than 40 feet, scull closer to the victim and grab the victim's armpit (right hand to right armpit or left to left) ***(Fig. 154).*** Use the armpit tow to level the victim and then apply a cross-chest carry. If possible, keep talking to reassure the victim. If the victim is passive, use a single- or double-armpit tow or a wrist tow.

Swimming Assists for Tired Swimmers

A swimming assist may be used to help a tired or distressed swimmer. An assist often involves a carry or a tow. Remember, tired swimmers can become actively drowning victims suddenly and without warning. Several swimming assists are described below:

- **Assist on front or back**—Enter the water and swim quickly to the victim. Swim alongside and grasp the victim (thumb up) by the upper arm near the armpit to support the victim and keep the victim's head above water ***(Fig. 155).*** Keep talking reassuringly and swim next to the victim, using a modified sidestroke, breaststroke, or rotary kick. Maintain a firm grip on the victim while supporting the victim and moving to safety.

Figure 155
Assist on front or back

- **Assist by two lifeguards**—Two lifeguards may be needed to assist a very large or nonbuoyant victim. The lifeguards should position themselves along each side of the victim. Each should grasp one of the victim's upper arms firmly with their thumb up ***(Fig. 156).*** They should assist the victim to safety using a modified sidestroke or breaststroke, reassuring the victim as they go.

Figure 156
Assist by two lifeguards

Tows and Carries

The purpose of a tow or a carry is to transport a victim to safety where additional emergency assistance can be provided if needed. A tow or a carry must be accomplished quickly and with concern for the victim's ability to breathe. Carrying and towing techniques must not inhibit the victim's breathing. Remember that whatever carry or tow you are using, you should tell the victim to relax and talk reassuringly to him or her.

Recognize that tows and carries require you to be in good physical condition because the size of the victim, the water temperature, waves, currents, and the distance to safety can combine to create difficult conditions. You must be aware of your strengths and weaknesses in relation to the victim and the environment when making a body-contact rescue.

These are several tows and carries that you can use:

- **Single-armpit tow**—This tow may be used for either active or passive victims and is well suited for use with a rear approach. After you assume the ready position, use your hand that is closer to the victim to grasp the victim's armpit (right hand to the right armpit, or left to left). Place your fingers under the arm and into the armpit with your thumb in the up position along the back of the victim's arm ***(Fig. 157).*** Rest your head on the water and begin swimming. Use any acceptable rescue kick.

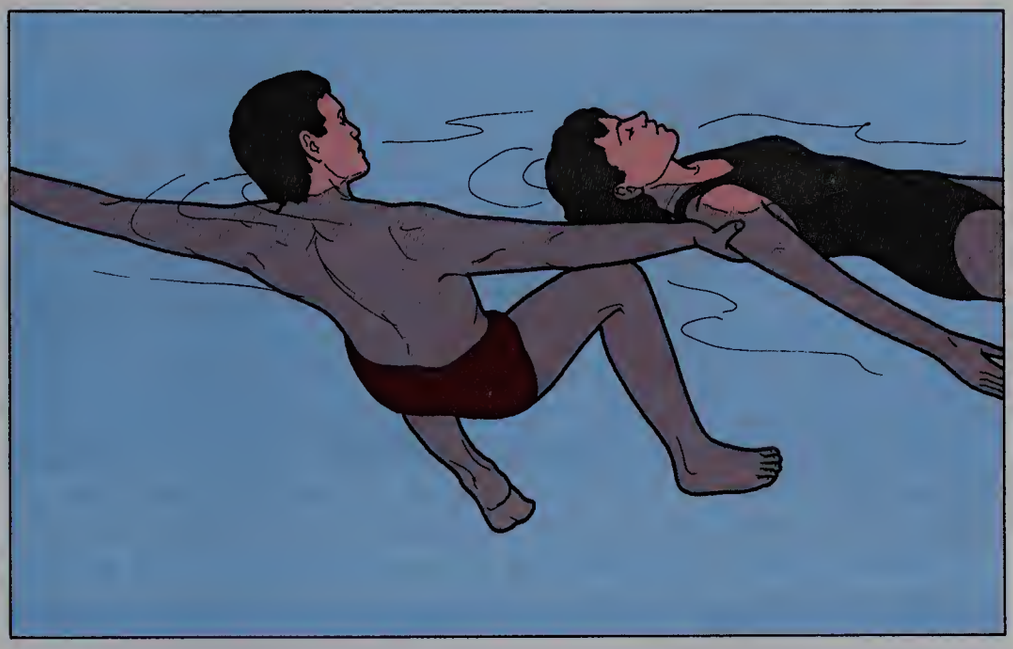


Figure 157
Single-armpit tow

- **Double-armpit tow**—This tow is used with a rear approach for either an active or a passive victim. Prior to contact with the victim, assume the ready position, then grasp both of the victim's armpits at the same time with your fingers under the victim's armpits and your thumbs up ***(Fig. 158).*** A rotary kick may be useful until both you and the victim are horizontal on your backs. Your legs and lower body should be beneath the victim ***(Fig. 159).*** Reassure the victim. If more control is needed, you can slide both your hands across the victim's chest. Hold on to one of your wrists or hands with your opposite hand.

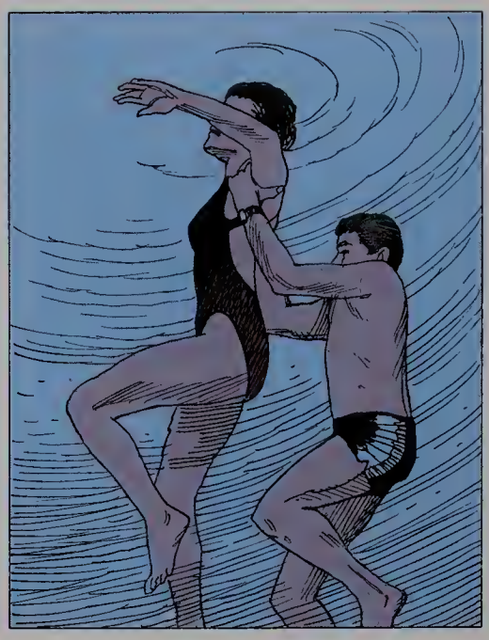


Figure 158
Grasp victim's armpits

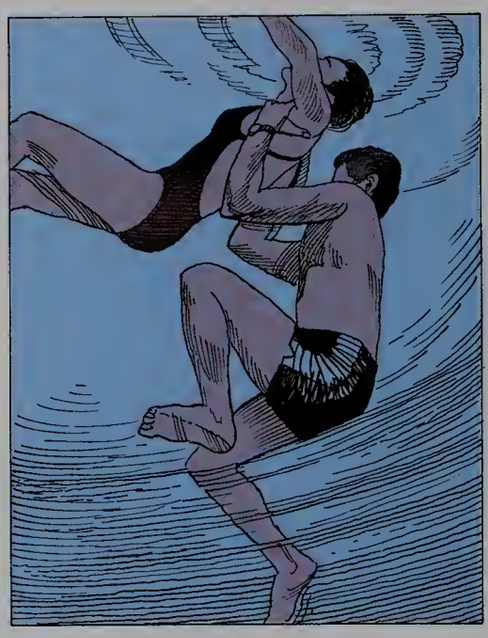


Figure 159
Kick to become horizontal in water

- **Wrist tow**—The wrist tow ***(Fig. 160)*** is only used for a passive victim not suspected of having a spinal injury. It is a logical carry to use when making a front surface approach. A strong kick is required to maintain the momentum necessary to keep the victim's face above water.

Figure 160
Wrist tow

Figure 161
Change from wrist tow to armpit tow

- **Changing from wrist tow to armpit tow**—Rough water conditions may require a change from a wrist tow to a single- or double-armpit tow. To change from a wrist tow to an armpit tow, continue to kick vigorously to maintain forward momentum. As you pull the victim toward you with your hand on the victim's wrist, use your free hand to grasp the victim's opposite armpit ***(Fig. 161).*** Release the victim's wrist and continue with the single- or double-armpit tow. Maintain contact with the victim while changing positions.
- **Cross-chest carry**—The cross-chest carry is used primarily for an active victim. **It is designed specifically for the comfort of the victim** and is difficult to use for long distances, even by well-conditioned lifeguards. When performed correctly, it allows the victim to sit up or elevate his or her head and shoulders above the water. Once he or she is able to breathe, the victim will usually stop struggling and relax. However, the victim's elevated body tends to force your head underwater, making it difficult for you to get consecutive breaths.

  The cross-chest carry can be used after a rear approach. Assume the ready position after swimming to within 6 feet of the back of the victim and scull closer before making contact. Grasp the victim at the armpit and begin kicking and pulling vigorously to move the victim to a horizontal or slightly backward position. Reach under the victim's arm (right arm to right side, left arm to left side) with your free hand and cross the victim's lower chest until your hand is holding on to the victim's opposite side ***(Fig. 162).*** Once in this position, let go at the armpit and kick vigorously to maintain momentum during the

Figure 162
Cross-chest carry

carry. Once the carry is under way, you may slide your arm up or down the victim's body, depending on how high the victim lifts his or her head above the water. You will need to surface periodically for a breath while performing the cross-chest carry. Based on the size of the lifeguard and the victim, the lifeguard may elect to go directly to the cross-chest carry.

- **Alternate cross-chest carry**—In the alternate cross-chest carry, after getting under way and bringing the victim to a horizontal position, bring your free arm over the corresponding shoulder of the victim across his or her chest until your hand is in contact with the victim's side just below the victim's armpit ***(Fig. 163).***

  Hold the victim firmly against the side of your chest. You will be on your side, and your hip will be directly beneath the small of the victim's back. Use the sidestroke with either the regular or inverted scissors kick. Check to see that the victim's face is clear of the water. This carry does not allow the victim's head to be up out of the water, as the cross-chest carry does. It is less comfortable for the victim but easier for the lifeguard over longer distances. The panicky victim may resist being placed on his or her back, so support and calm the victim first if possible. Based on the size of the lifeguard and the victim, the lifeguard may elect to go directly to the cross-chest carry or alternate cross-chest carry.

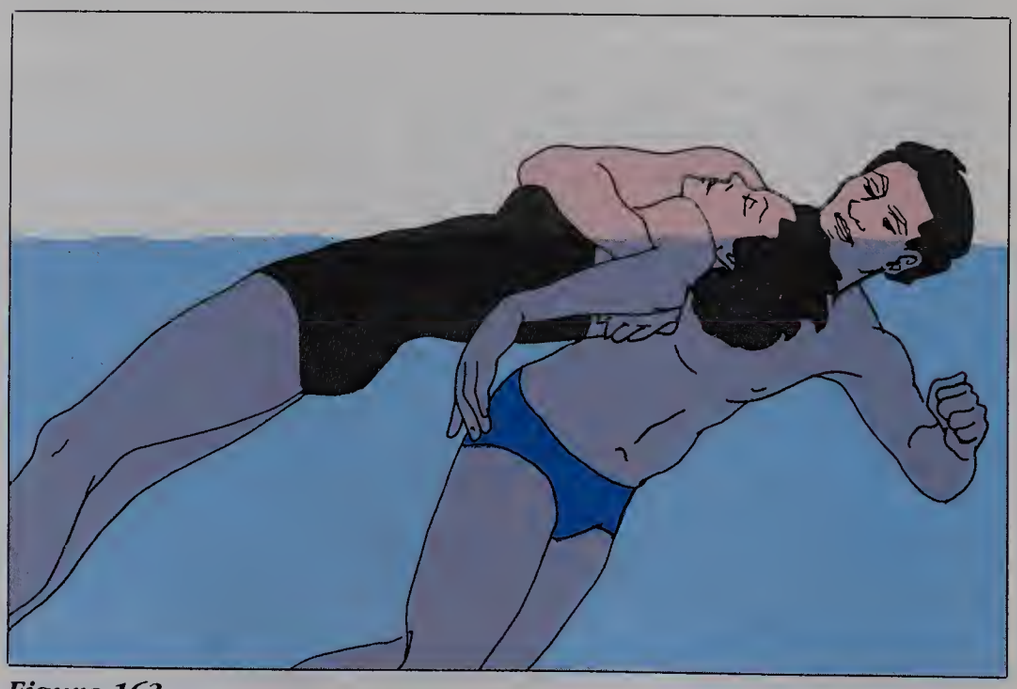


Figure 163
Alternate cross-chest carry

Defense

If you use a proper approach and come to the victim from behind, you will not need to defend yourself from a panicky victim. If you approach from the front, you may be confronted face-to-face with a panicky victim. The victim may attempt to grab your head, shoulder, or arm and attempt to hold on in an effort to keep his or her face out of the water. This requires a quick reaction on your part. Following is a description of the one-hand or two-hand block that if executed quickly may prevent the victim from gaining hold:

- **One- or two-hand block**—The block is designed to prevent the victim from grabbing hold of you. You can perform a block by placing the open palm of one hand high on the victim's chest while leaning away and submerging when the victim attempts to grab you. Remember to keep your arm extended while submerging your head ***(Fig. 164).***

  The same result can be obtained by blocking with two hands high on the victim's chest. Keep your arms fully extended while submerging.

  After using a block, return to the surface, away from the victim, reassess the situation, and approach the victim from behind.

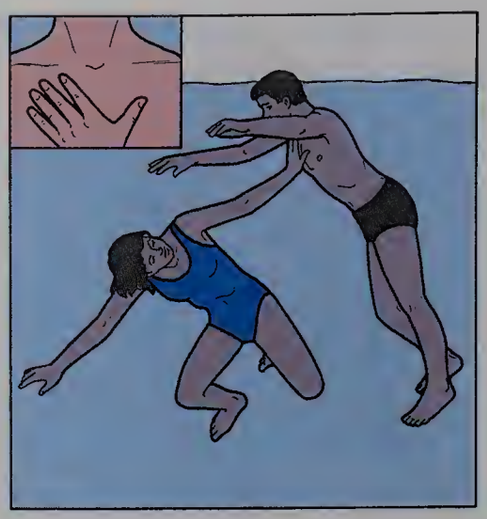


Figure 164
One-hand block

Escapes

If you are grabbed by a victim, there are several escapes available to you:

- **Escape by swimming to safety with the victim holding on**—If the victim is small or buoyant, or the distance to safety is short, you may choose to swim to safety while the victim holds on to you. The breaststroke is best if the victim grabs you by the head from the front. The sidestroke or breaststroke can be used if the victim grabs you by the head from behind. Use the sidestroke or rotary kick if you are grabbed by the wrist or upper arm.
- **Escape by submerging the victim to break contact**—The lifeguard can choose to break the hold of a victim immediately by pushing or taking the victim underwater. If the victim is holding your head from the front or rear, take a breath, tuck your chin, turn your head to either side, raise your shoulders, and use a feetfirst surface dive to take the victim underwater. If the victim grabs your wrist or upper arm, reach forward with your free hand, place it on the victim's shoulder (right hand to right shoulder), and press the victim underwater while pulling your hand free. Once underwater, the victim should let go. Once you are free, return to the surface away from the victim and reassess the situation. Swim to the rear of the victim and use any appropriate tow or carry to take the victim to safety.

Figure 165
Front head-hold escape—submerge

Figure 166
Front head-hold escape—push up and away

- **Escaping and then rescuing the victim**—The lifeguard can combine his or her escape from the victim with a rescue of the victim as follows:
  - **Front head-hold escape**—As soon as you are grabbed, take a quick breath, tuck your chin, turn your head to either side, raise your shoulders, and submerge with the victim ***(Fig. 165).*** On the way down, bring your hands to the victim's elbows or the undersides of the upper arms and push vigorously up and away from you ***(Fig. 166).*** Keep your chin tucked, your arms fully extended, and your shoulders raised until you are free. Quickly swim on your back or side, out of reach of the victim. After surfacing, swim around behind the victim, using a rear approach and any appropriate tow or carry to complete the rescue.

- **Rear head-hold escape**—If the victim grabs you from behind, take a quick breath, tuck your chin down, turn your head to either side, raise your shoulders, and submerge with the victim ***(Fig. 167).*** Bring your hands up to the elbows or to the underside of the victim's arms just above the elbows. Push upward forcefully and twist your head and shoulders until you escape. When the victim releases his or her grasp, swim up and out of reach. Surface and swim behind the victim. Use a rear approach and any appropriate tow or carry to complete the rescue.
- **Arm-grip and wrist-grip escape**—If the victim grabs your arm, quickly submerge the victim by reaching across with your free hand and pushing down on the victim's shoulder while kicking upward for better leverage ***(Fig. 168).*** Pull your arm free and swim clear. If the victim grabs your wrist, you may also reach down with your free hand, grab your other hand, and pull your arms upward ***(Fig. 169).*** Stroke backward quickly to escape the victim's reach. Swim around behind the victim, using a rear approach and any appropriate tow or carry to complete the rescue.

Figure 167
Rear head-hold escape

Figure 168
Arm-grip escape

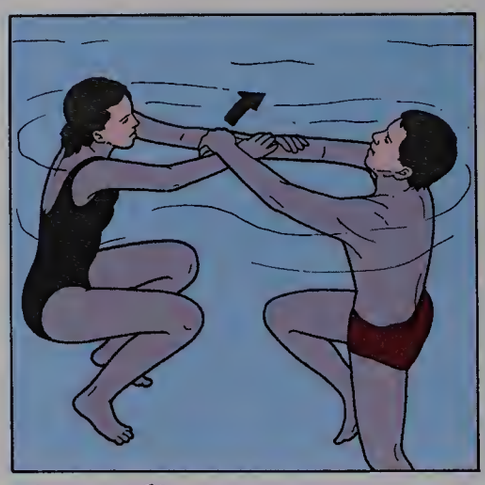


Figure 169
Wrist-grip escape

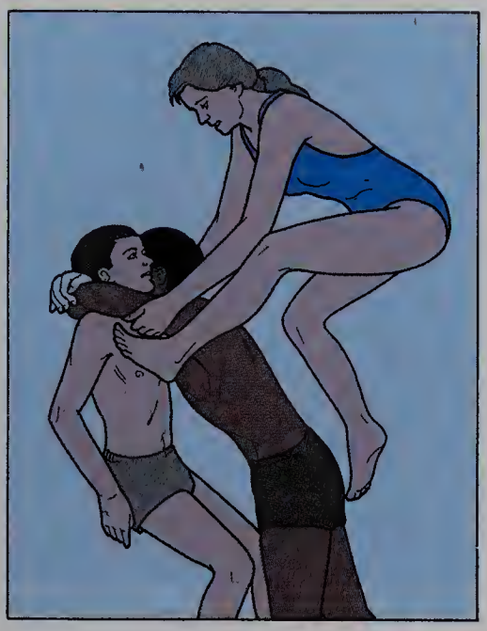


Figure 170
Place feet on upper chest

Multiple-Victim, Near-Drowning Maneuver

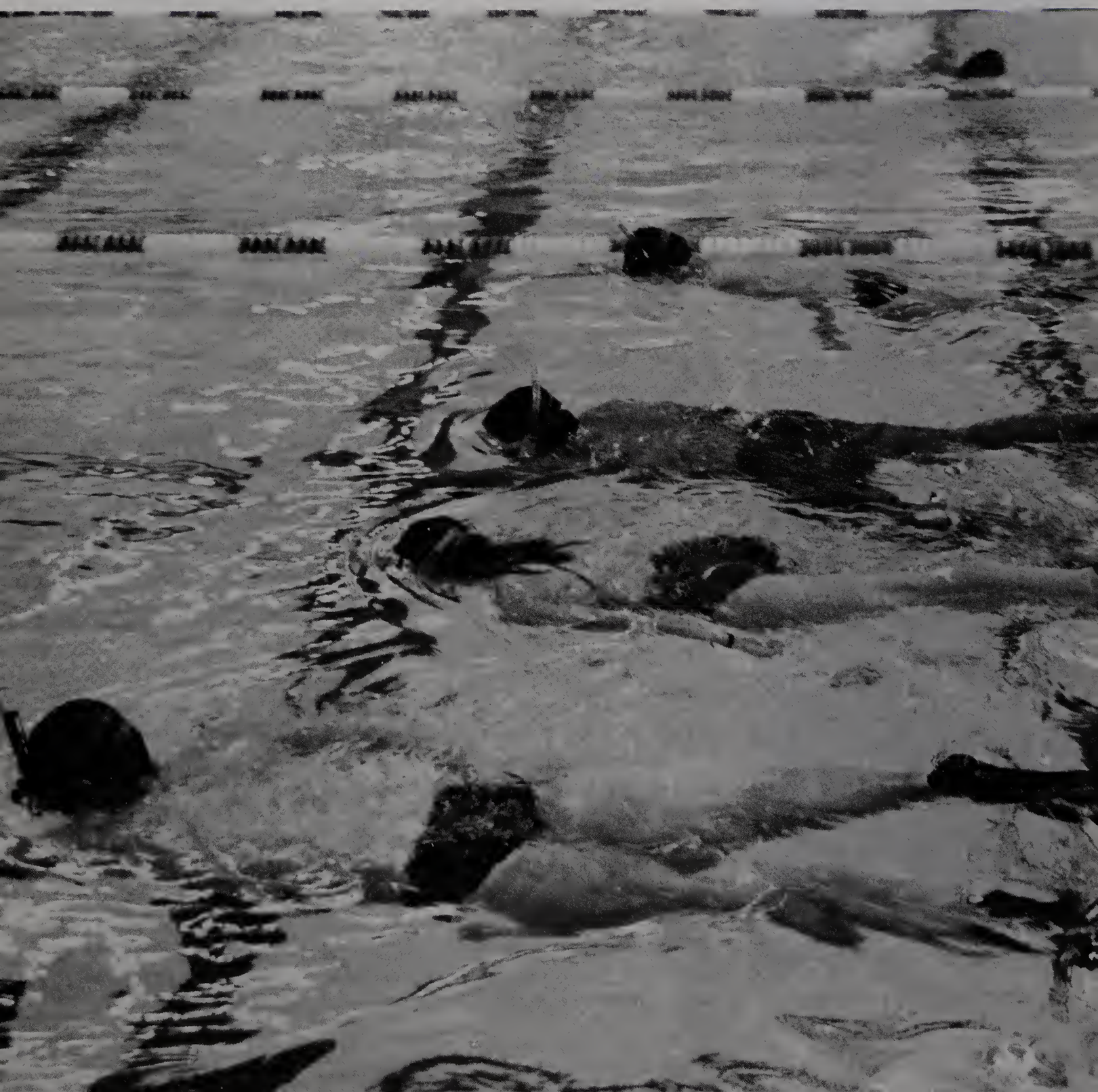
Occasionally, near-drowning situations occur that involve two or more victims. Often the victims clutch each other in their panic. A multiple-victim, near-drowning situation should be handled by several lifeguards, if possible. A one-to-one ratio of lifeguards to victims is best for safety and speed. Should a multiple-victim, near-drowning situation occur where water visibility is poor, at least one lifeguard should check the bottom for possible submerged victims while the rescue of those on the surface proceeds. A thorough search should be made as soon as the known victims are provided with emergency care.

If you are the only lifeguard available to handle a multiple-victim, near-drowning situation and you are within a short distance of safety, you should have the victims clutch each other and push or tow them to safety using a double-armpit tow on one of the victims. If the distance to safety is too great, tow or carry the victims to safety one at a time. If victims who are clutching each other are submerged, swim to the rear of the victim who has attained the top position. Move your hands quickly to the armpits of that victim while placing one or both feet on the shoulders or upper chest of the victim being clutched ***(Fig. 170).*** Press down and away with your feet (don't kick) while pulling on the armpits of the victim you are holding until the two victims are separated. After towing or carrying the first victim to safety, return to assist the other victim(s). If another lifeguard is available, that second lifeguard should help the other victim(s).

Remember, any flotation device dramatically increases the safety of all victims and lifeguards in multiple-victim rescues.

10 Mask, Fins, and Snorkel Skills

152 Masks
154 Fins
156 Snorkels



Masks, fins, and snorkels are used for swimming enjoyment and underwater exploration. Lifeguards also use this equipment for pool maintenance and underwater search and recovery. Using fins can help a lifeguard keep a victim with a spinal cord injury afloat in deep water. Quick rescue of submerged victims may depend on ready accessibility and proficient use of masks, fins, and snorkels. They should be available to lifeguards at aquatic facilities and practice with them incorporated into all in-service training programs.

Figure 171
Test mask for fit

Figure 172
Press faceplate against forehead

Masks

Defogging the Faceplate

New masks require some preparation before use. It is necessary to clean the inside and outside of the faceplate with a mildly abrasive detergent (toothpaste is an excellent cleanser) to remove the thin, greasy film; otherwise, normal defogging methods will be ineffective.

To prevent condensation from forming on the inside of the faceplate, rub saliva or a commercially produced defogging solution on the inside of the glass; then rinse the mask with water.

Proper Mask Fitting

To determine if a mask fits properly, place the mask against your face without using the strap, making sure your hair is out of the way ***(Fig. 171).*** Inhale slightly through your nose. Forceful inhalation can disguise a poorly fitting mask. The mask should remain in place without being held as long as gentle suction is applied. Adjust the strap to hold it firmly in place. Do not overtighten the strap or the sealing edge of the mask will be flattened, causing it to leak. Next, put your face in the water with the mask strapped on. If it leaks, tighten the strap.

Clearing a Mask of Water

Even if your mask fits properly, small amounts of water may leak in while you are swimming underwater. Practice in clearing the mask in shallow water will increase your confidence in using the mask.

Fit the mask to your face as described above. Submerge in a sitting position and tilt or lift the top portion of the mask away from your forehead, allowing water to enter slowly. Place two or three fingers (or the palm of one hand) on the top of the faceplate and press in against your forehead ***(Fig. 172).*** At the same time, exhale through your nose and then tilt your head back slightly. This forces the water out at the lower edge of the mask ***(Fig. 173).*** Most masks can be cleared easily several times on one breath of air. Repeat as often as necessary until you are comfortable with this step. Continue practicing underwater in shallow water.

In deep water, the mask may be cleared while you are swimming in a horizontal position. Turn your head to either side, place two or three fingers or the palm of one hand on what was the side, but is now the top, of the mask. Press firmly, exhale through your nose, and water will be forced out through the lower side ***(Fig. 174).***

If the mask has a purge valve, exhale through your nose, and the water will be forced out of the one-way valve ***(Fig. 175).***

Relieving Ear and Mask Pressure

When a diver descends, the surrounding water causes an increase in pressure that, if not equalized, can cause discomfort, pain, and possible injury. It is important, therefore, to prevent injury by understanding and using proper equalization techniques.

Ear pressure may be relieved by a technique called the Valsalva maneuver—the attempted exhalation against closed nose and mouth. Place your thumbs along the bottom of the mask, press it against your nostrils, and attempt to exhale. If the mask is equipped with a molded nose, use it to pinch your nostrils while attempting to exhale. You may have to make repeated attempts before pressure in your ears is relieved. Some people can clear their ears by extending the jaw forward and swallowing. Do not attempt to go deeper until you are successful in clearing your ears.

The rule for equalizing pressure (clearing the ears) is to equalize early and often; if you cannot equalize the pressure, ascend immediately. Equalization begins on the surface. If equalization is difficult, it is better to return to the surface than attempt to force it. Forceful use of equalization techniques can cause injury. You should not attempt equalization if you have head, chest, or sinus congestion as the result of allergies or a cold.

Descending divers may experience discomfort around the face because of "mask squeeze." The difference in pressure causes soft facial tissue to be squeezed into the mask space. To help relieve this pressure, exhale a small amount of air from your nose into the mask.

Figure 173
Force water out

Figure 174
Clear mask—horizontal

Figure 175
Clear mask—purge valve

Fins

Putting on the Fins

Wet your fins and your feet or boots before putting the fins on, as this makes it easier to push the fins over your feet or boots. Push the fins on; do not pull. Pulling often causes fin straps to break or become out of adjustment. Once a fin is on, fit the strap over your heel.

While wearing fins, always walk sideways or backward to avoid tripping. Look behind you to keep from falling while walking backward on land. If possible, do not walk while wearing fins.

Kicking With Fins

The purpose of using fins is not speed but the ability to move steadily without overexertion. The most common kick with fins is the modified flutter kick ***(Fig. 176).*** You can use it when you are faceup, facedown, or on your side. The kicking action is deeper and slower and has a greater knee bend than the flutter kick. While swimming on the surface, be sure to keep the fins underwater to maximize propulsion. Since they make treading water easier, fins are very helpful in deep-water rescues.

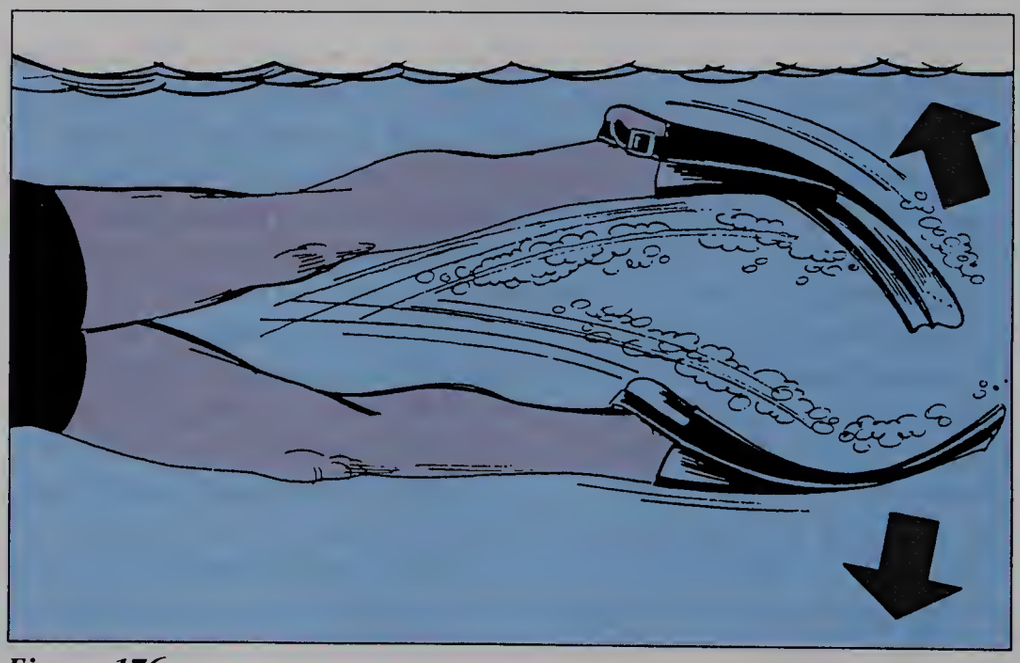


Figure 176
Fins—modified flutter kick

A dolphin kick ***(Fig. 177)*** can also be used for surface and underwater swimming. It is a motion performed with the entire body. Keep your legs and feet together. Bend your knees to bring the fins up and arch your back. Then straighten your legs and bend forward at the waist to bring your legs down. Bend your knees again to bring the fins up, straighten your body, and arch your back. This is a continuous, undulating motion.

The easiest way to swim underwater while wearing fins is to use your legs only. Your arms can be carried forward for protection when swimming in unclear water but are normally positioned at your side.

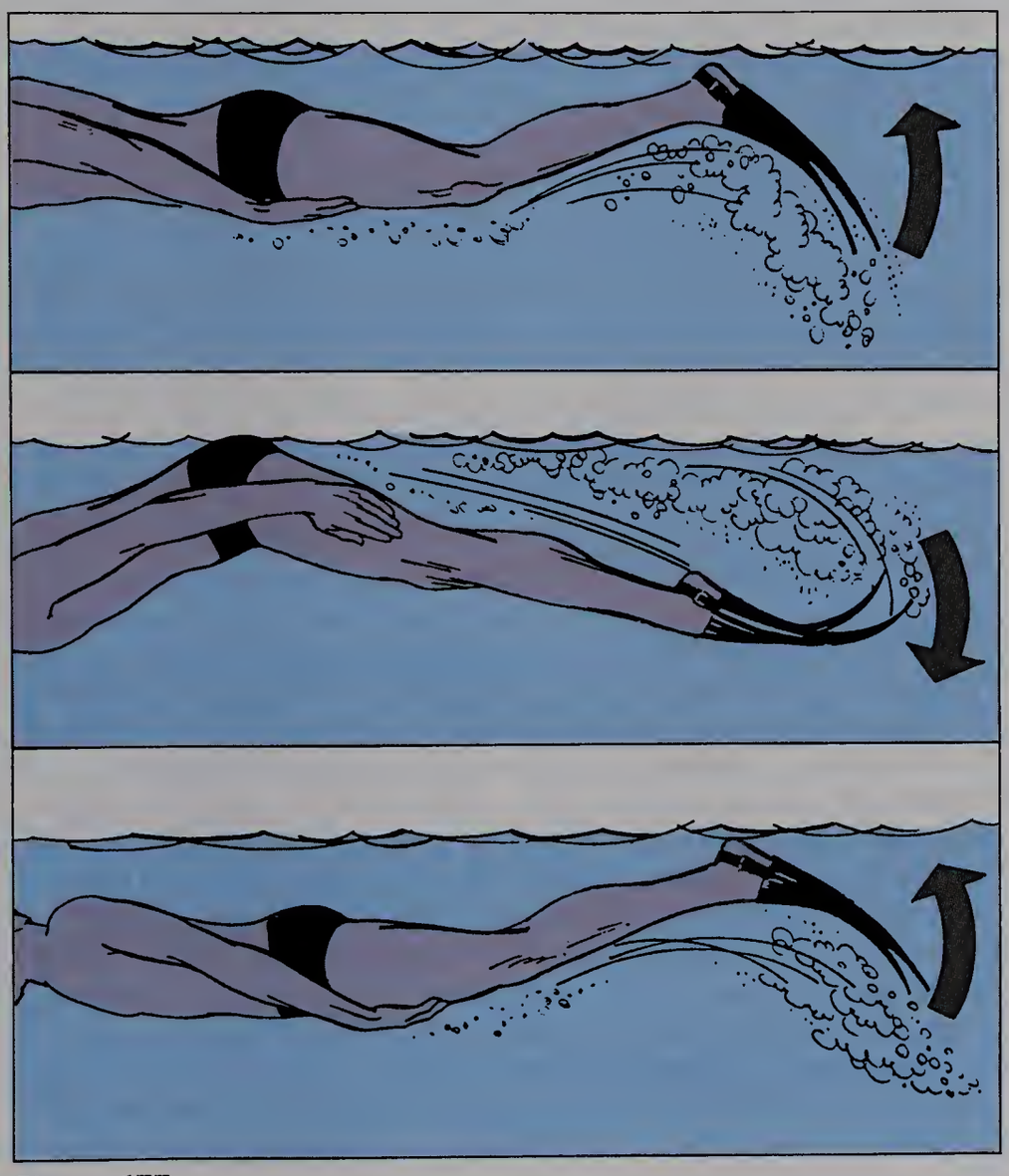


Figure 177
Fins—dolphin kick

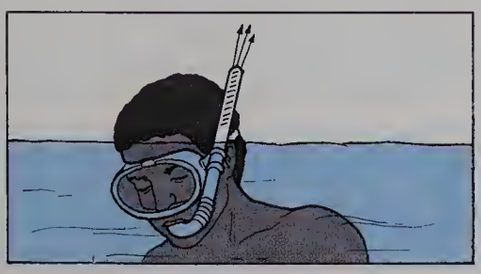


Figure 178
Clear snorkel by exhaling

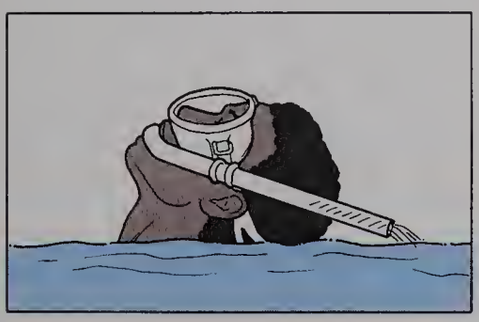


Figure 179
Clear snorkel by tilt method

Snorkels

Using the Snorkel

Attach the snorkel to the left side of your mask. Place the mask on your face and the snorkel in your mouth. The mouthpiece should fit between your teeth and lips. Adjust the position of the snorkel in the keeper and on the mask strap for a comfortable fit and to make sure the mouthpiece remains in your mouth when your mouth is opened widely. This minimizes tension on the mouth. The snorkel should rest by your ear when your face is in the water.

Seal the snorkel by holding your lips firmly around the barrel. Practice breathing with your face out of the water until you feel comfortable. Then, while standing in chest-deep water, put your face in the water and practice breathing. After becoming comfortable with this skill, practice breathing while swimming on the surface with your face in the water.

Swimming while breathing through a snorkel requires deeper breathing techniques because of carbon dioxide build-up in the body. Proper snorkel breathing techniques are important because of exertion and increased air requirements. Inhalations should be deep and relaxed, and exhalations should be shorter and stronger than normal to expel exhaled air completely before taking another breath. To prevent shallow-water blackout, snorkel divers must be discouraged from excessive hyperventilation (more than 3 breaths) before submerging. Diving in buddy pairs is always recommended. Only one snorkeler should dive at a time while the buddy remains on the surface and observes the dive.

Clearing the Snorkel

You need to know how to clear water out of the snorkel because it will fill up when you dive (and sometimes while you are swimming on the surface). Practice flooding and clearing the snorkel in shallow water. Take a breath and submerge deep enough to flood the snorkel. Return to the surface, keep your face in the water, and exhale forcefully through the snorkel. A forceful exhalation will expel the water from the tube ***(Fig. 178).*** Then inhale carefully and slowly in case a small amount of water remains in the snorkel. Exhale again to force out any remaining water and then continue to breathe normally. This technique is called the "blast method."

Another way to empty the snorkel is by the tilt or displacement method ***(Fig. 179).*** When the wrist of your extended arm breaks the surface, tilt your head back, look up, and exhale gently. When your snorkel clears the surface, return your head to a facedown position and inhale gently. If there is still water in the snorkel, blow forcefully.

Entering the Water Wearing Snorkeling Equipment

After gaining confidence with mask, fins, and snorkel, you need to learn how to enter the water safely while wearing the equipment. Two entries—the stride jump and the sit-in—are commonly used and should be practiced until you can make a smooth entry from a low-level pool deck, boat, or dock. Never attempt a headfirst entry.

- **Stride jump**—The stride jump is for entering from heights of less than 3 feet. Put on your fins. Put on your mask. Place the snorkel in your mouth, and hold it firmly with one hand covering the faceplate so that the mask is not dislodged when you enter the water. Keep the elbow of the hand holding the mask close to your chest. Keep the other arm extended down and forward. Observe the water to ensure that no swimmers or obstacles are in the way. Step out with a long stride over the water; do not lean forward ***(Fig. 180).*** When your fins touch the surface, quickly bring your legs together with your toes pointed, as in the scissors kick. The kicking action will stop the downward motion and keep your head and shoulders above the water.
- **Sit-in**—The sit-in can be started from a standing or sitting position with your back to the water. Put on your fins. Put on your mask and adjust the snorkel in your mouth. Hold the mask firmly with one hand covering the faceplate and your elbow close to your chest. Place your other hand by your side. If standing, place your heels even with the edge of the pool. Tuck your chin onto your chest, and pull your knees to your chest as you sit backward into the water. If entering from a boat, sit on the side and hold on with one hand while holding on to the mask with your other hand. Tuck your chin on your chest, pull your knees to your chest gently and slowly, and lean back into the water ***(Fig. 181).*** (This entry is also called the "back roll entry.") You must ensure that there are no obstacles in the water before making the entry. You should lean back until gravity pulls you in; do not lean back suddenly or forcefully.

  This entry may leave you somewhat disoriented and affords no protection against objects in the water. It should only be performed in water that is at least 9 feet deep.

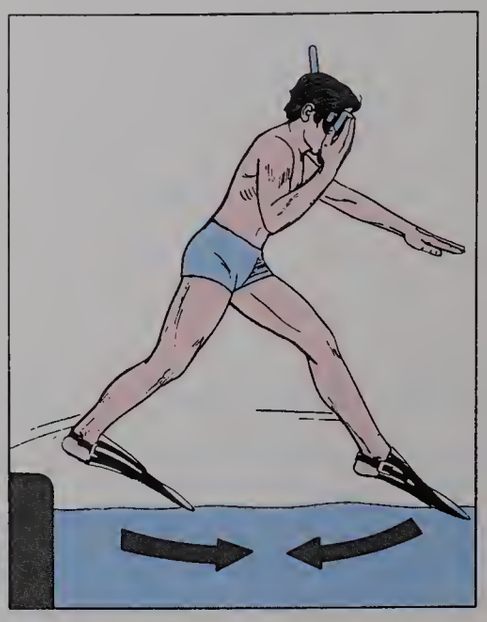


Figure 180
Stride jump

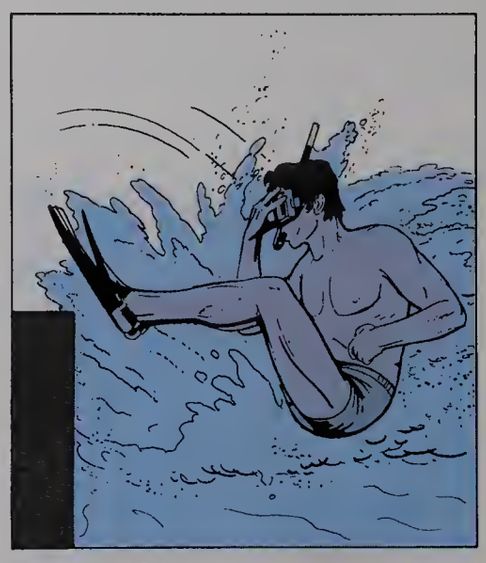


Figure 181
Sit-in

Swimming While Wearing Snorkeling Equipment

The normal swimming position when you are wearing mask, fins, and snorkel is horizontal with your arms at your side and your face in the water ***(Fig. 182)***. When using a snorkel, you can scan the bottom for a submerged victim or object without having to lift your face to breathe.

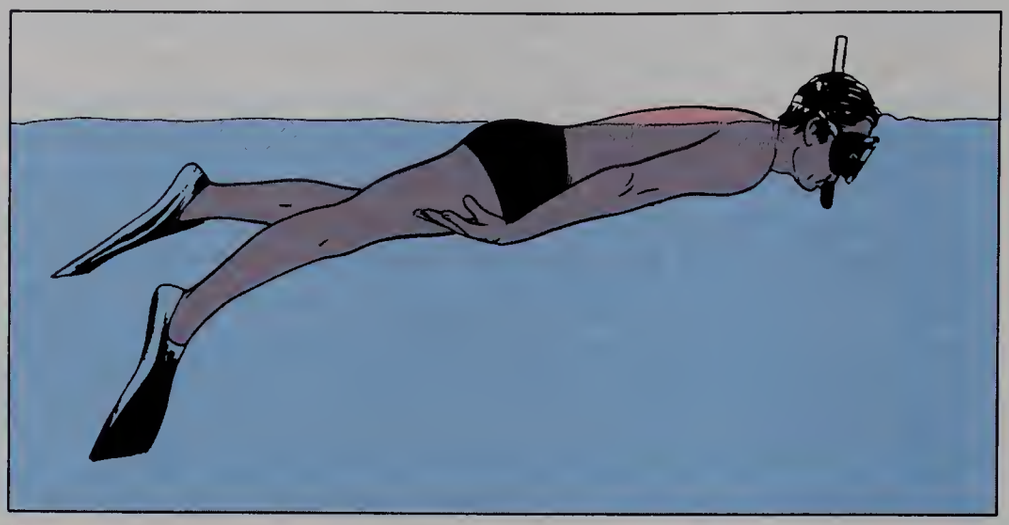


Figure 182
Swim with snorkeling equipment

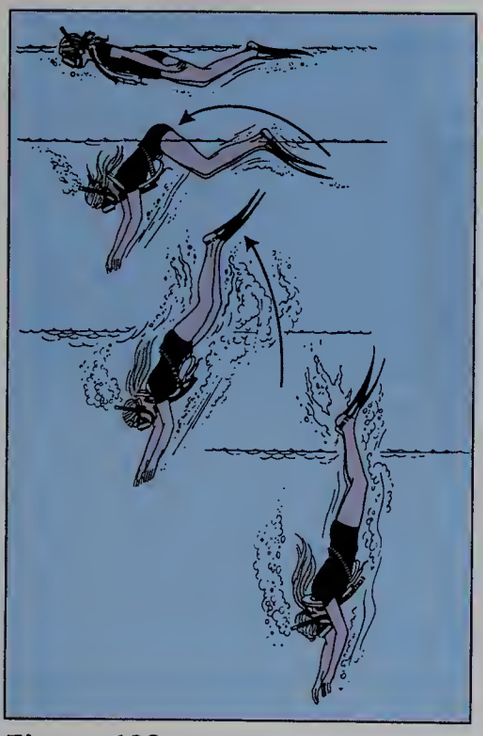


Figure 183
Surface dive with snorkel

Surface Diving and Resurfacing

You perform a surface dive by rolling forward into a tuck or pike position to descend ***(Fig. 183)***. Remember to clear your ears. When you return to the surface, stop, look up, listen, and extend a hand overhead before surfacing. This safety precaution should be standard procedure when surfacing. Upon reaching the surface, clear your snorkel and resume normal breathing.

Recovery of a Submerged Victim

When a victim has disappeared beneath the water, recovery must be made with the utmost speed if the victim is to be resuscitated. The location of the victim must be reasonably well established. Observations of untrained eyewitnesses often are inaccurate in their estimation of time, location, and circumstances surrounding a drowning.

While scuba equipment is preferred for underwater search and recovery in deep, open water, a scuba rescue team is usually not immediately available. Therefore, lifeguards will need to use less effective but immediate means of searching for and recovering a submerged victim. During such a rescue, the facility's emergency action plan should be activated and a scuba rescue team summoned.

Depth of water, clarity, temperature, waves, and current are all factors that must be considered in search and rescue. Other potential hazards include aquatic plants and other aquatic life, monofilament, and boat traffic. The availability of additional help and search and rescue equipment will determine the best procedures to use.

Recovery of a Submerged Victim by Surface Diving

If the victim goes under as you are approaching, you must get to the victim as quickly as possible. Pace yourself, however, to avoid becoming too tired. Keep your eyes fixed on the spot where the victim was last seen. Upon reaching the spot, perform a surface dive ***(Fig. 184).*** When you locate the victim, grasp the victim's wrist, arm, or armpit from behind. Plant your feet if the bottom is firm, push off, and stroke and kick your way to the surface. If the bottom is soft or muddy, you must depend entirely on your arm and leg strokes to bring the victim to the surface. Check the victim's breathing and begin rescue breathing, if necessary, as soon as possible after you reach the surface.

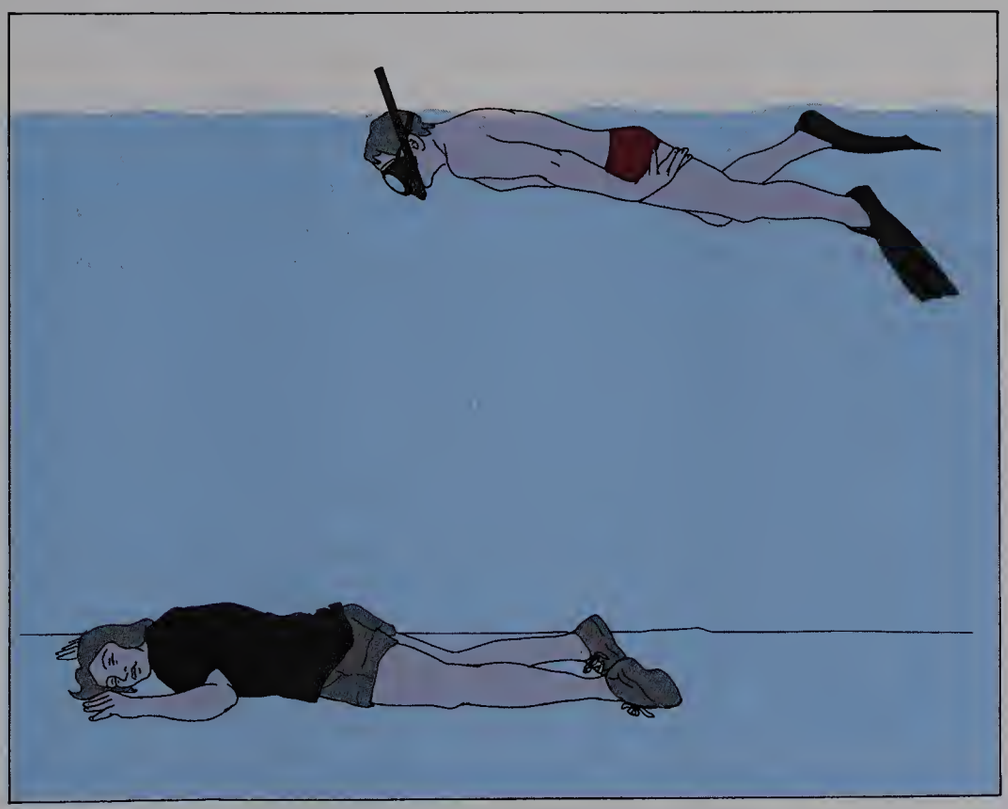


Figure 184
Locating submerged victim

When there is doubt as to the location of a victim, you must survey the situation and plan a course of action. Determine the general area in which the victim is supposed to have gone under. Look for bubbles rising to the surface. If there are none and the water is clear, systematically swim across the area with your face in the water and scan the bottom. If the bottom is dark, you may detect light clothing, a bright swimming suit, or the gleam of bare arms and legs.

On white sand, dark clothing and dark hair can indicate the location of a victim. When you locate the victim, surface dive, swim to a position behind him or her, grasp the wrist, upper arm, or armpit, and swim to the surface. Begin rescue breathing on the surface, if possible.

In murky or dark water where the bottom can be reached by surface diving, search the area in which the swimmer was last seen by using a series of systematic feetfirst surface dives. Attempt to cover the designated area of the bottom in a series of overlapping lanes until the victim is found or until you are satisfied that the victim is not in that section. After each dive, swim along the bottom for 2 or 3 body lengths and then surface. Move back about 3 feet and then repeat the process. Attempting to swim along the bottom for a considerable distance can be exhausting; and, if the victim is not found on the first few attempts, you may be unable to continue long enough to cover a designated area in the search. Diving repeatedly, even in shallow water (8 to 10 feet), is physically very demanding. Using a systematic formation or pattern whereby every square foot of the bottom can be examined is the best technique, whether the searching is done by a single guard or a group of lifeguards.

11 Search and Recovery Operations

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Every aquatic facility should have procedures for locating missing persons. All staff members at a facility must be thoroughly trained in these procedures. Time is a critical factor during a search for a missing person. The lifeguard may have little or no idea of how long the person has been missing. Regardless of where the person was last seen, there is always the possibility that he or she is underwater. The missing person must be found as quickly as possible, and rescue breathing or cardiopulmonary resuscitation (CPR) must be started immediately, if necessary.

In recent years, more emphasis has been placed on search and recovery operations because of studies done on cold-water survival. These studies have shown that drowning victims may be revived if given proper treatment in time. Since individual reaction to cold varies according to age and water temperature, it is vital that the individual be found as quickly as possible.

All areas should be searched quickly and thoroughly, using organized search formations and patterns rather than having one or two lifeguards search the areas haphazardly. The following guidelines may be used as a basis for organizing search and recovery operations. These guidelines may be modified to meet the needs of different facilities.

Organization and Planning

In the development of plans for search and recovery operations, all possible situations should be considered, such as lost swimmer, drowning victim, or capsized boat. Procedures should be established for each of these situations. Everyone who will be involved in search and recovery operations must know their responsibilities.

Additional support personnel, such as those from police, fire, and rescue departments, should be involved in the organization and planning phase. Their assistance will help develop effective operations. When they should be called, what should be done before they arrive at the facility, and what type of assistance they will need when they arrive are examples of information that support personnel can supply. The involvement of other facility staff, such as park rangers, camp counselors, and maintenance personnel, also needs to be discussed and planned. The recruitment and training of volunteers also should be discussed. The more trained people involved with search and recovery operations, the greater the area that can be covered in a shorter period of time.

Communications systems must be established and clearly defined so that there is no delay in an emergency. Calls or signals for communication may be made by whistle, air horn, or announcement over a public address system. Specific signals will be needed for the following situations:

- To indicate that a person has been reported missing.

- To summon facility staff to a designated area, such as the office, guard room, or first aid room. (This may not necessarily include lifeguards who are at a guard station.)
- To clear the water of swimmers, if necessary.
- To summon additional support staff and volunteers.
- To sound "all clear" or a signal to indicate that the missing person has been found or that the search is being called off.

Crowd control and supervision of swimmers must be discussed and planned for during the organizing phase. If they are not controlled, large groups of people can impede operations. Clearing the swimmers from the water must be done in a safe and orderly manner. Once out of the water, they still require supervision to prevent them from gathering in areas where search operations are taking place. Because the lifeguards will be involved with the search and rescue operations in the water, crowd control usually will be left to other facility staff, such as locker room attendants or maintenance personnel.

Training

Schedule practice sessions for search and recovery operations on a regular basis for all the staff at an aquatic facility. Involve volunteers and support personnel as often as possible. Establish back-up systems to cover situations such as the use of volunteers during the operations.

Keep accurate records and evaluations on all practice sessions. Hold critiques to discuss all aspects of the operations: procedures, communications, responsibilities, and time frames. Make any revisions in the procedures, and run repeat drills as soon as possible. To be effective in an emergency, search and recovery operations continually must be evaluated and improved.

Suggested Procedures for Missing Person Drill

A common type of "missing person" or "lost swimmer" is the small child who has wandered off to the bathroom or the snack bar and is reported missing by a parent. However, you must take every instance of a missing person seriously. Factors that must be considered when someone is missing are the—

- Size and shape of the facility.
- Conditions of the bottom in the water area.
- Absence or presence of current.
- Number of staff on duty.
- Missing person's age, skill level, and size.
- Length of time the person has been missing.
- Location where the person was last seen.
- Number of people at the facility.

The following procedures for a missing person drill may be modified for different aquatic facilities:

1. Give a predetermined signal to alert staff when a person is reported missing. Have all staff not on duty report to the office, guard room, or other predesignated location. Make a preliminary search of the water area as soon as possible.
2. Take the person reporting the missing individual to the location where the staff has assembled. The person, especially a parent, will usually be very excited and will want to join in the search, but discourage the person from doing so.
3. Give a complete description of the missing person to the staff, including sex, height, color of hair, skin color, weight, and type of clothing. Have a relative, parent, or friend remain at a designated location. Once found, the missing person then can be taken there for identification.
4. Make an announcement over the public address system. Include a description of the person, the person's name, the location where he or she was last seen, and the place to take the person, if found. The announcer can tell a missing child where to go.
5. Assign lifeguards who are not on duty at the time to search the swimming area where the person was last seen.
6. At the same time, assign other lifeguards and facility staff to check other areas, such as shallow water, bathrooms, showers, locker rooms, snack bar, and sunbathing areas.
7. At camp facilities, have a staff person check the missing person's cabin or room and other areas where the person may have gone.
8. If the person is still missing, assign personnel to check the surrounding areas, such as playgrounds, camp sites, wooded areas. For facilities that have additional personnel, such as

park rangers, playground supervisors, camp staff, or maintenance personnel, have some established procedures for calling these people together. They can then be assigned to check the surrounding areas. Concentrate the aquatic staff's search efforts on the water area.

9. Give the signal to clear the water of all swimmers (for example, one long blast on a whistle or an air horn, followed by specific instructions from the management).
10. While swimmers are clearing the water, begin to set the boundary for the area to be searched. If the place where the person was last seen is known, put a buoy in the water at that spot.
11. Ask volunteers assisting in the search of the shallow-water area to report to a specific location near the water. Assign one or two lifeguards to organize the search teams and to give a quick explanation of the procedures to be followed.
12. While the volunteers are being organized, the remaining lifeguards should begin to check the deep-water area. Depending on the clarity of the water, this can be done by using a short series of dives or by swimming with masks, snorkels, and fins along the surface.
13. At all times during these operations, have only one person direct the activities (usually the manager or the head lifeguard). This cuts down on confusion and on wasted time.
14. If the person is not found after a thorough search of the swimming area, call in additional support personnel from rescue squads or the fire department. Continue to search the swimming area until these personnel arrive at the scene.

Underwater Search

Use all available personnel when an immediate search of the underwater area is required. Use searchers in water depths that are appropriate to their respective skill levels. The first area to be searched should be the area where the person was last seen. As additional areas are designated, lifeguards should be in charge of each search area. If possible, search the areas simultaneously.

Shallow-Water Areas

Shallow-water areas that have poor visibility can be searched by having people link arms or hold hands and wade in line across the area ***(Fig. 185).***

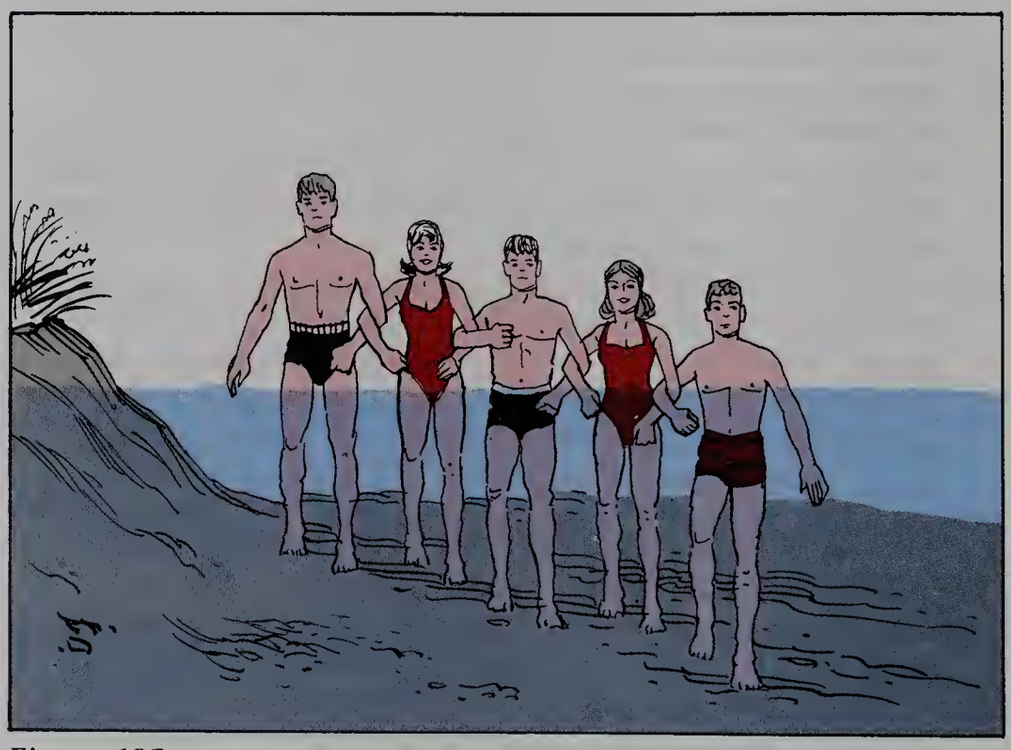

Figure 185
Link arms; wade in line across area

As the line progresses forward slowly, have the searchers gently sweep their feet across the bottom with each step they take. A suggested pattern for a shallow-water search ***(Fig. 186)*** covers the entire area. Any person tall enough to stand in the water may be used for this type of search. The searchers should not go beyond chest-deep water, or a depth of more than 4 feet, since it may be faster to conduct a diving and swimming search in deep water.

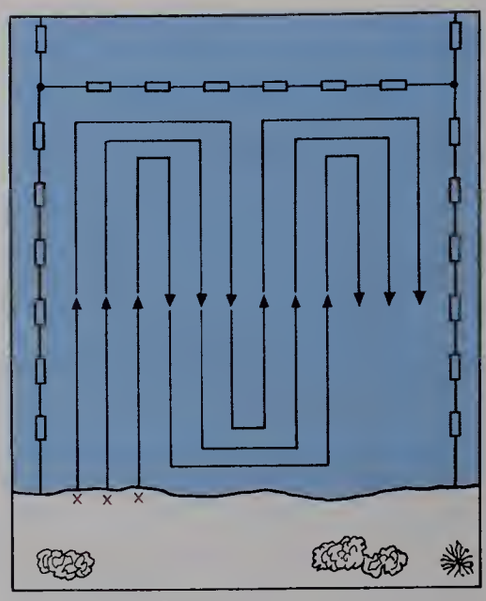

Figure 186
Pattern for shallow-water search

Deep-Water Areas

When a search is made for a lost swimmer in deep water, use a search pattern. Deep water is considered to be any water over 5 feet deep. Begin to search the deep water immediately if an individual who has been reported missing cannot be found in shallow water. Search patterns that can be used include—

- **Line search**—The searchers form a straight line, no more than an arm's length from each other. On command from a lifeguard, they surface dive to the bottom and swim forward a set number of strokes. The searchers' hands touch the bottom lightly as their arms sweep outward from, and then inward toward, the midline of their bodies. The sweeping actions of the arms are slow and continual ***(Fig. 187).*** Touching the bottom gently with their palms helps the searchers prevent injury if they should strike a sharp object. It may be advisable to sweep the hands just above the bottom when the bottom is muddy and when disturbing the bottom may create greater visibility problems. The searchers should use the type of kick that is best for them while swimming underwater.

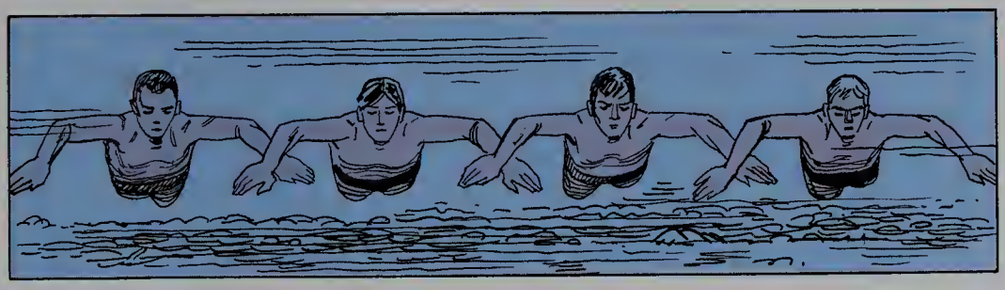

Figure 187
Underwater line search

The searchers swim as straight as possible up to the surface after completing the designated number of underwater strokes. They then back up about 6 feet, reform their line, count off to ensure that all of the searchers are accounted for, and repeat the diving sequence ***(Fig. 188).*** Repeat these procedures until the entire swimming and diving area has been covered in one direction. The searchers then should sweep the area at a 90-degree angle to the first pattern if the missing person is not located.

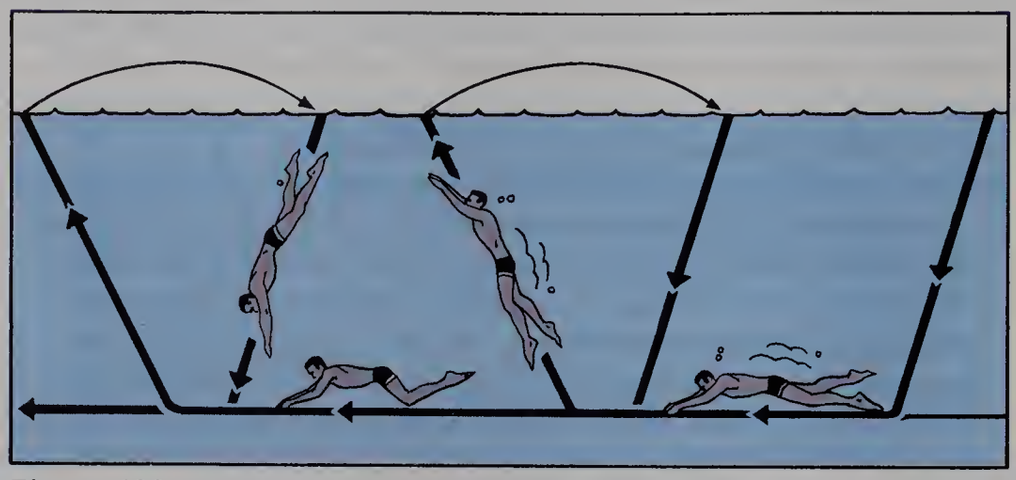

Figure 188
Line search—repeated diving sequence

Search all the swimming and diving areas as quickly as possible. The search of adjacent areas must be continued if the missing person has not been found. At waterfront facilities, this includes the area under the docks and outside the swimming area. If there are enough qualified personnel, do all the searches simultaneously. Camp waterfront areas can be divided into separate sections for individuals of different skill levels, such as A for beginners, B for advanced beginners, C for swimmers, and D for swimmers with lifeguarding experience ***(Fig. 189).*** Have a lifeguard in charge of the search for each section.

- **Circle search**—The circle is another pattern that may be used by searchers. There are two methods of using this pattern:

1. The **full-circle method** can be strenuous. Use only personnel who are physically fit and trained in the procedure. A central pivot is set in the approximate area where the missing person was last seen. This pivot can be an anchored boat, the corner post of a dock, or even a person who is standing in neck-deep water. A line is tied to or is held at the pivot point. It is stretched out and held by the searcher farthest from the pivot point who remains on the surface. Have the line long enough to accommodate the number of searchers. The searchers line up along the stretched line each time they are ready to dive. They use the same procedures for diving, swimming underwater, surfacing, and backing up that are described above for the line search pattern. Move the position of the stretched line each time the divers surface and back up.
2. The **half-circle method** uses the same procedures as the full-circle method except that the pivot point is located on the shore or on the side of a dock ***(Fig. 190).***

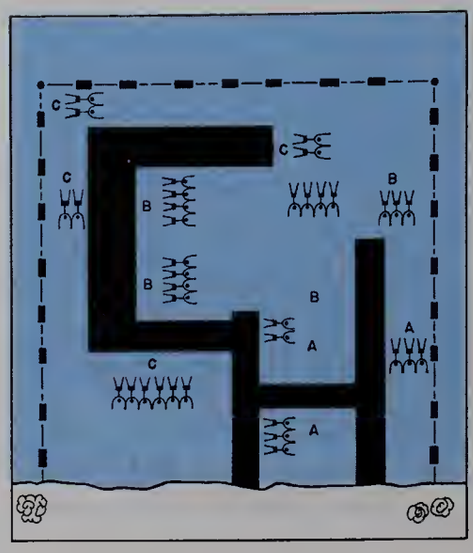

Figure 189
Waterfront search

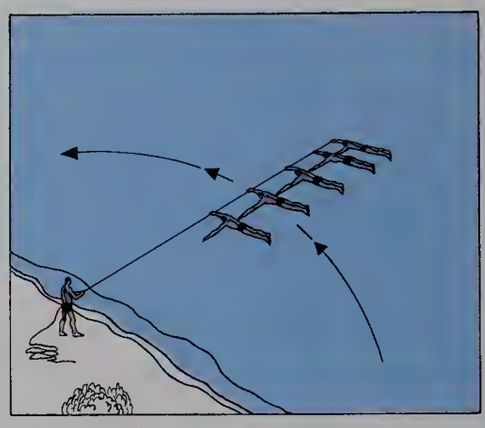

Figure 190
Half-circle method

Recovery Operations

Grappling

There is a remote possibility that grappling equipment could be put into operation in time to save the life of a submerged victim, particularly in cold water. However, because of the time it can take to assemble the necessary equipment and personnel, the operation usually becomes one of body recovery rather than rescue. A grappling operation must cover the entire area. The head lifeguard or the facility manager should set the boundaries for each area to be searched. The search pattern is determined by the shape of the area to be searched, the water depth, and the nature of the bottom, such as rock, mud, or sand. Other factors, such as currents and the condition of the water and the weather, must also be considered.

Center the first search efforts in the area where the missing person was last seen. The following types of grappling operations can be set up quickly and with a minimum of equipment and personnel:

- **Single-boat grappling** usually involves towing the grappling equipment behind a slow-moving rowboat or power craft ***(Fig. 191).***

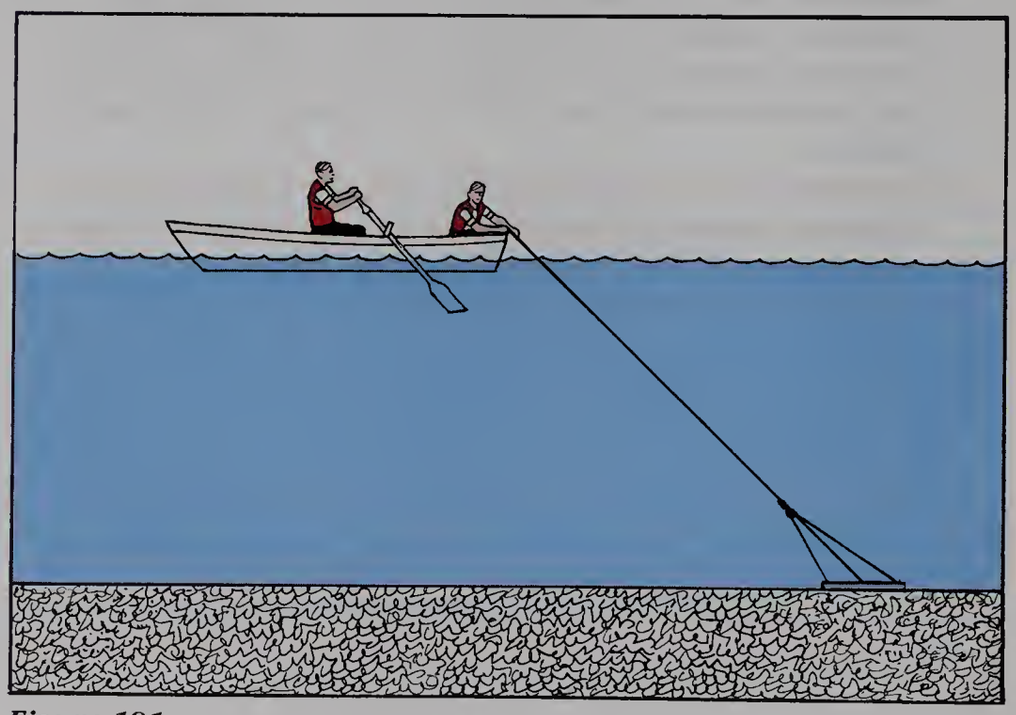

Figure 191
Grappling equipment towed behind boat

If you use an outboard motor that does not have a remote control, it may be advisable to operate the craft stern-first with the lineman in the bow of the boat ***(Fig. 192).*** This reduces the possibility of the towline getting fouled in the blades of the motor.

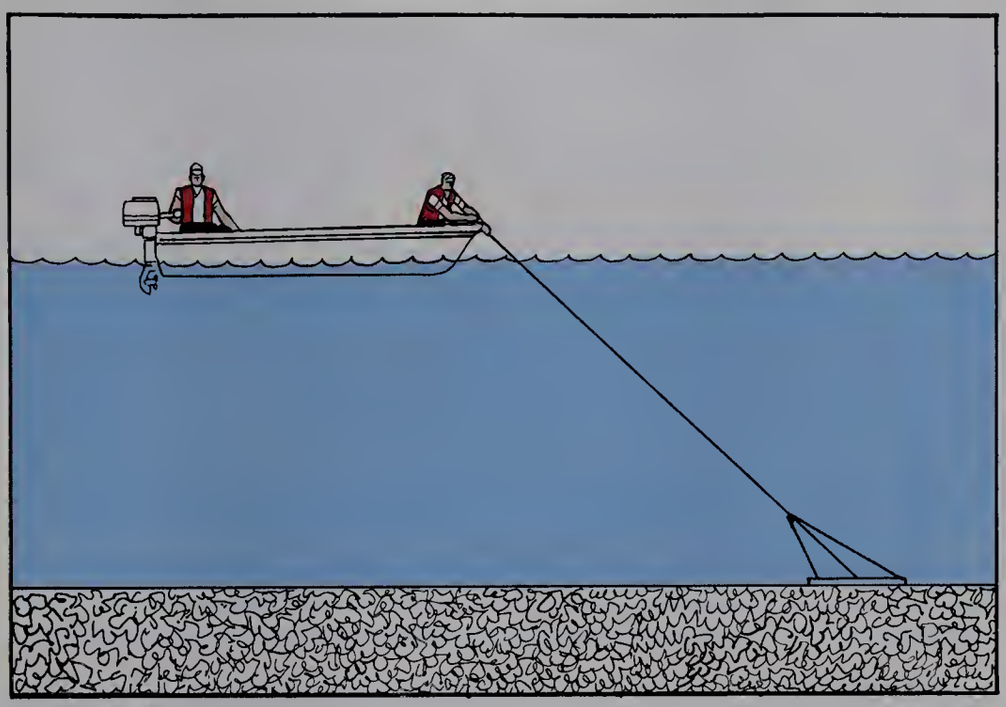

Figure 192
Lineman in bow of boat

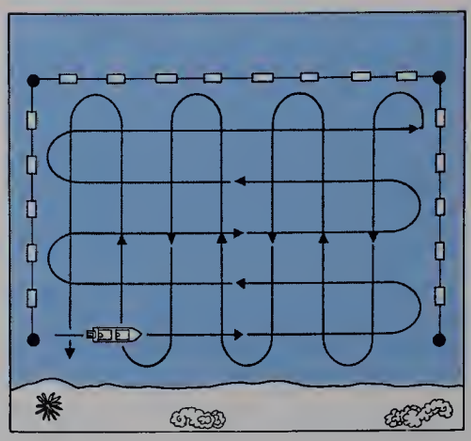

Figure 193
Buoys used to mark search

One method of covering an area is shown in ***Figure 193.*** Buoys are used to mark the search area.

Move the boat back and forth across the area, with each sweep overlapping the previous one. When an object is hooked with the grappling equipment, stop the boat and then move it to a position so that the towline comes out of the water perpendicular to the surface. This will put the boat directly over the object that has been hooked. If possible, raise the object slowly. If it cannot be raised with the grappling equipment, a lifeguard or a trained diver will have to go down, identify the object, and unhook the equipment if necessary. If there is a need to resume the dragging operation, move the boat back over part of the area that has already been searched before the apparatus is lowered again. This overlapping ensures that no area of the bottom is missed.

- **Dock-to-dock grappling** involves moving the grappling equipment back and forth across the bottom between two docks in a partially enclosed swimming area ***(Fig. 194).***

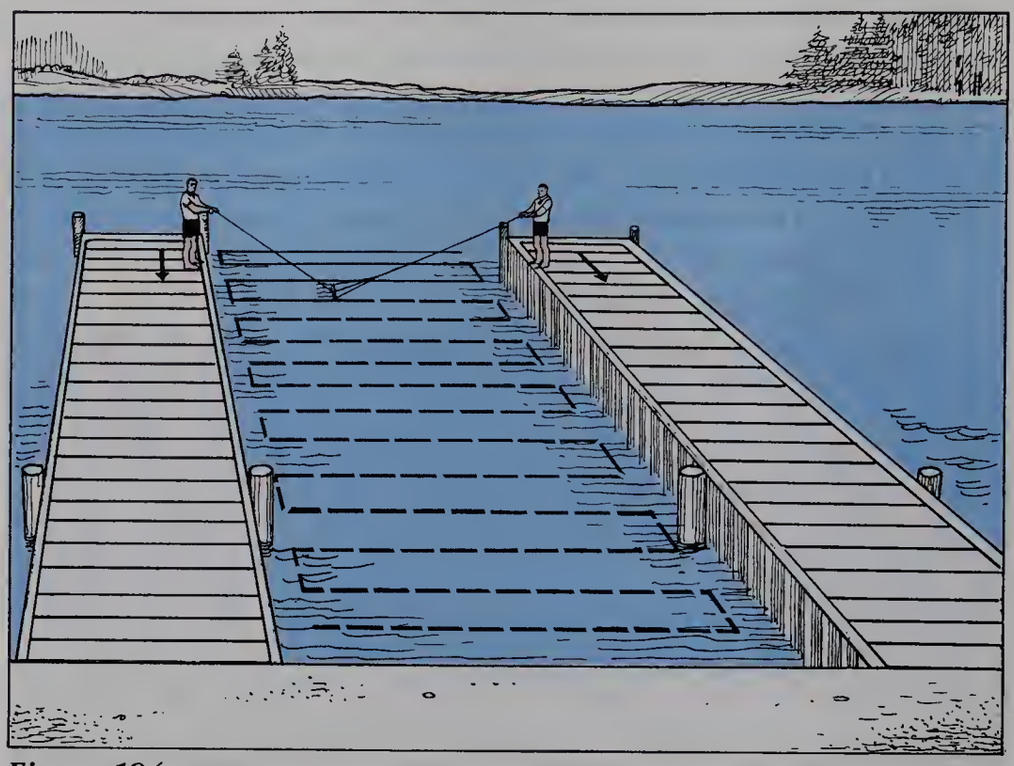

Figure 194
Moving grappling equipment across bottom between two docks

Attach two lines to the grappling irons, and pull them across the designated area. After each pass, move sideways and continue the pattern. Overlap each pass of the equipment over the previous one. The area under the dock can be searched with grappling poles or by divers. In streams where there is a current, start the search downstream from where the missing person was last seen ***(Fig. 195).***

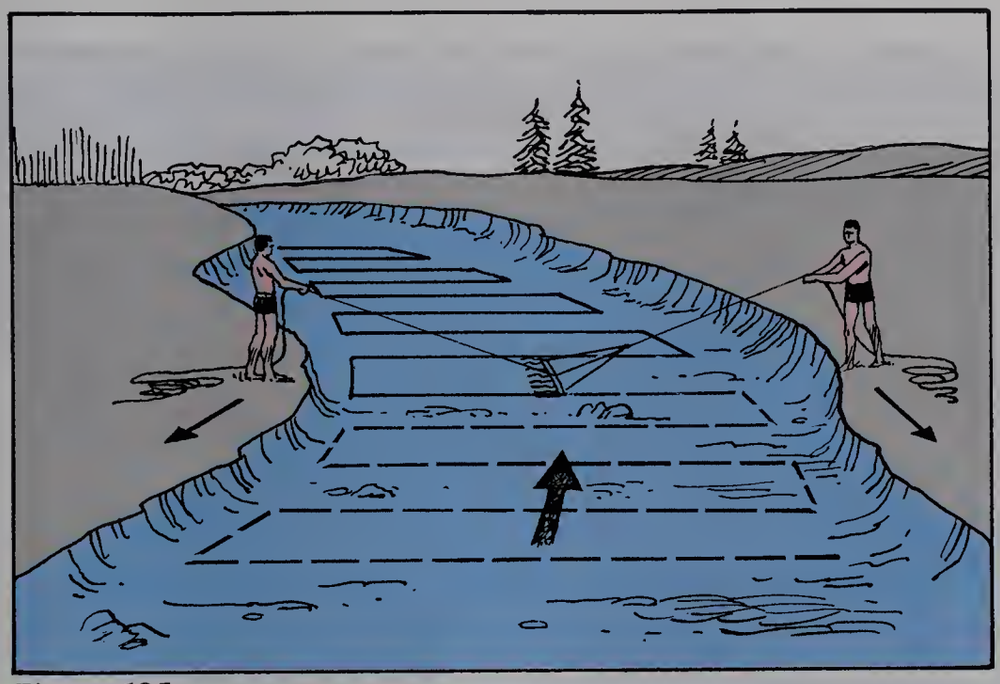

Figure 195
Start search downstream from where missing person was last seen

- **Boat-to-shore grappling** involves operating grappling equipment between an anchored boat and the shore of a wide river or an open swimming area ***(Fig. 196).*** If there is a current in the river, head the boat upstream. The operator on shore moves upstream with each pass of the equipment. Once a designated area has been searched, move the boat upstream parallel to shore. Establish a new search area with some overlap of the previous area.

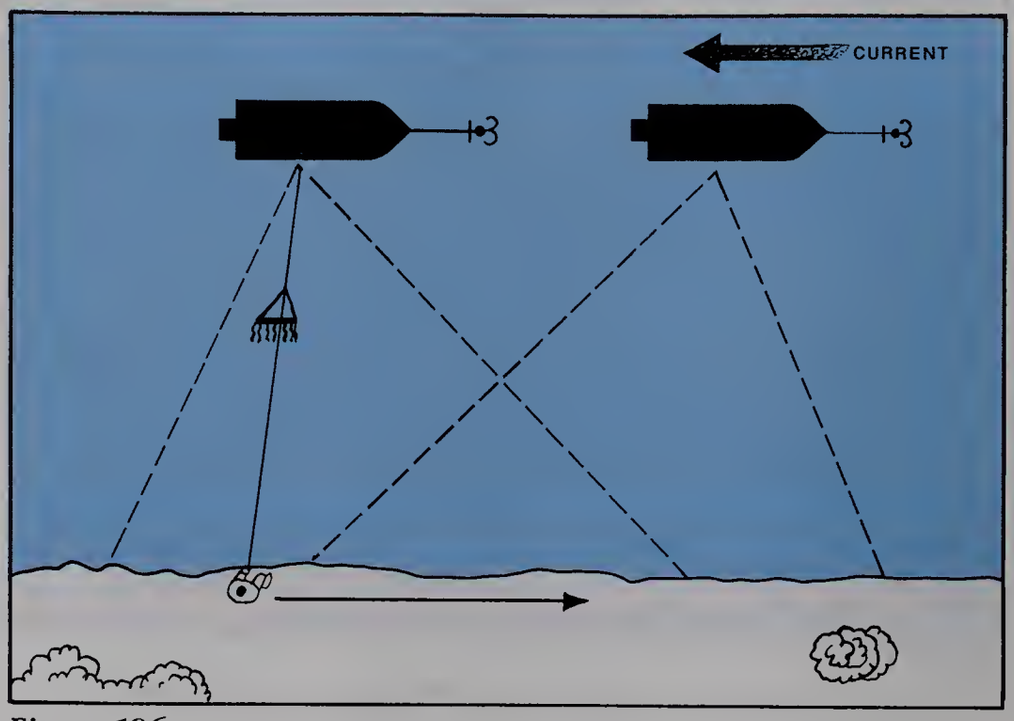

Figure 196
Moving grappling equipment between boat and shore

Scuba Search and Rescue

Make sure all personnel who will use scuba equipment during recovery operations are trained and certified by a nationally recognized organization and have additional training in scuba search and recovery operations.

Scuba divers can use the same types of search patterns that have been discussed previously in this chapter. They also may use other types of patterns because of their ability to remain underwater longer than divers without scuba equipment.

12 Spinal Injury Management

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179 General Rescue Procedures for Victims of Suspected Spinal Injury

184 Specific Rescue Procedures for Victims of Suspected Spinal Injury

This chapter provides information that will help lifeguards recognize a victim with a suspected spinal injury and handle the victim in such a way as to prevent any further injury. Although this chapter deals with spinal injuries in the water, lifeguards should also be trained to handle a victim with spinal injuries on the deck or beach.

Sports-related injuries comprised 14.2 percent of all spinal cord traumas in 1986.* Sixty-six percent of these sports-related spinal cord injuries were caused by diving. Of these diving injuries, approximately 95 percent occurred in water 5 feet deep or less.

Rarely does a spinal injury occur as the result of supervised diving or a dive off of a board into deep water. Spinal injuries that occur in pools most often happen at the shallow end of the pool, in a corner of the pool, or where the bottom slopes off into deeper water. At open-water facilities, such as lakes or rivers, spinal injuries occur in areas where water levels vary because of tides or currents or in areas where there are underwater hazards, such as rocks or tree stumps. Spinal injuries also occur at the beach areas of lakes or oceans, caused mainly by swimmers running into the water, plunging headfirst into shallow water, and hitting their heads on the bottom. Running dives at waterfronts should not be permitted.

This chapter deals with the immediate management of spinal cord trauma for a victim in the water. Appropriate turns to right a prone victim, stabilizing of the spine, cervical collar placement, proper boarding procedures, and removal from the water are covered.

Understanding the Spine and Assessing Spinal Injuries

A lifeguard must have a basic understanding of the anatomy and function of the spine in order to provide appropriate immediate care to a victim with a suspected spinal injury.

The spine is a strong, flexible column that supports the head and trunk and provides protection to the spinal cord. The spine consists of small bones called vertebrae. Each vertebra is a circle of bone. These vertebrae are separated from each other by cushions of cartilage called intervertebral disks ***(Fig. 197).*** This cartilage acts as a shock absorber when a person is walking, running, or jumping. The spinal cord is a bundle of nerves that runs through the hollow part of the vertebrae. Nerve branches extend to various parts of the body through openings on the sides of the vertebrae.

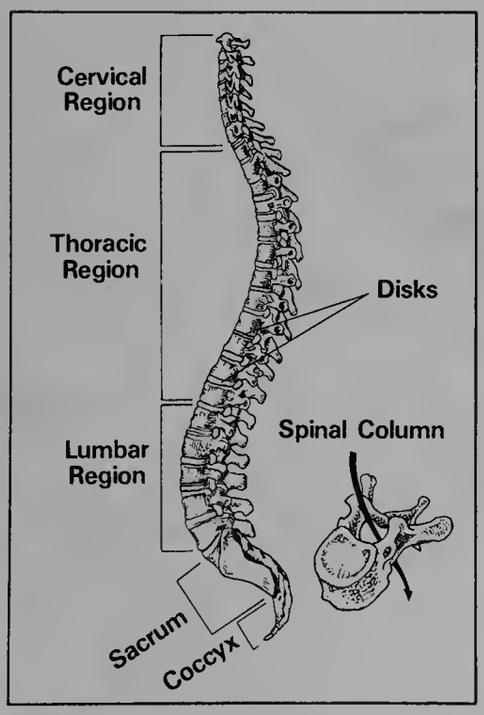


Figure 197
Anatomy of the spine

**Spinal Cord Injury: The Facts and Figures,* A Spinal Cord Injury Data Base at the University of Alabama in Birmingham, 1986.

The spine is divided into five regions: the cervical (neck), the thoracic (mid-back), the lumbar (lower back), the sacrum, and the coccyx (small triangular bone at the lower end of the spinal column.) Although injuries can occur anywhere in the spine, most diving-related injuries result in damage to the cervical region.

Injuries to the spine include fractures and dislocations of the vertebrae, sprained ligaments, and compression or displacement of the intervertebral disks. Any of these situations can cause the spinal cord to be compressed or severed, resulting in temporary or permanent paralysis or death.

Suspecting Spinal Injury

In trying to determine if the spinal cord has been injured, you must take into consideration the cause (mechanism) of injury. The following is a general list of situations that may indicate a spinal cord injury:

- Any fall from a height greater than the victim's height
- Any person found unconscious for unknown reasons
- Any significant head trauma
- Any diving and/or sliding board injuries

A victim of a spinal injury may exhibit any of the following signs:

- Pain at the site of the fracture
- Loss of movement in the extremities or below the fracture site
- Loss of sensation or tingling in the extremities
- Disorientation
- Back or neck deformity
- Visible bruising over an area of the spinal column
- Impaired breathing
- Head injury
- Fluid or blood in the ears

Principles for Handling a Victim of Suspected Spinal Injury

Lifeguards do not have the formal training or the equipment necessary to make an accurate diagnosis of a spinal injury. Therefore, you must consider all suspected spinal injuries as serious injuries and care for them as if there were a fracture.

The following factors will influence your actions when dealing with a victim of suspected spinal injury:

- The victim's condition, including the presence or absence of respiration or pulse
- The lifeguard's size in relation to the victim
- The location of the victim—in shallow water, deep water, or on the bottom
- The availability of assistance—additional lifeguards; emergency medical services (EMS), police, or fire department personnel; bystanders
- The temperature of the water and/or air

As with any other emergency, an action plan for this type of injury must be established and then practiced regularly. Because of the great potential for further injury to the victim, additional precautions must be taken when caring for the victim of a suspected spinal injury.

Proper management of the airway must be maintained at all times. Depending on the degree of the injury to the spinal column, the victim may not be breathing or may be experiencing breathing difficulty. If the injury is in the cervical region, there may be paralysis of the chest muscles. Talk to the victim. If the victim can speak, the victim is breathing. If the victim is not responding to you, you must determine if he or she is breathing. If the victim is not breathing, resuscitation should be started immediately. Care must be taken to minimize head movements. Techniques such as the modified jaw thrust, therefore, should be used to open the airway when performing rescue breathing for a victim with a suspected spinal injury. In the water, this procedure is best accomplished with a second lifeguard. While the first lifeguard continues to stabilize the head and neck, the second lifeguard opens the airway to check for breathing.

The modified jaw thrust is a method of opening the airway that minimizes movement of the victim's head and neck. From a position at an angle behind the victim's head, the second lifeguard places his or her hands on both sides of the victim's head and applies pressure to the angles of the lower jaw with the fingers to lift the jaw upward ***(Fig. 198).*** At the same time, the palms of the lifeguard's hands keep the victim's head from moving backward.

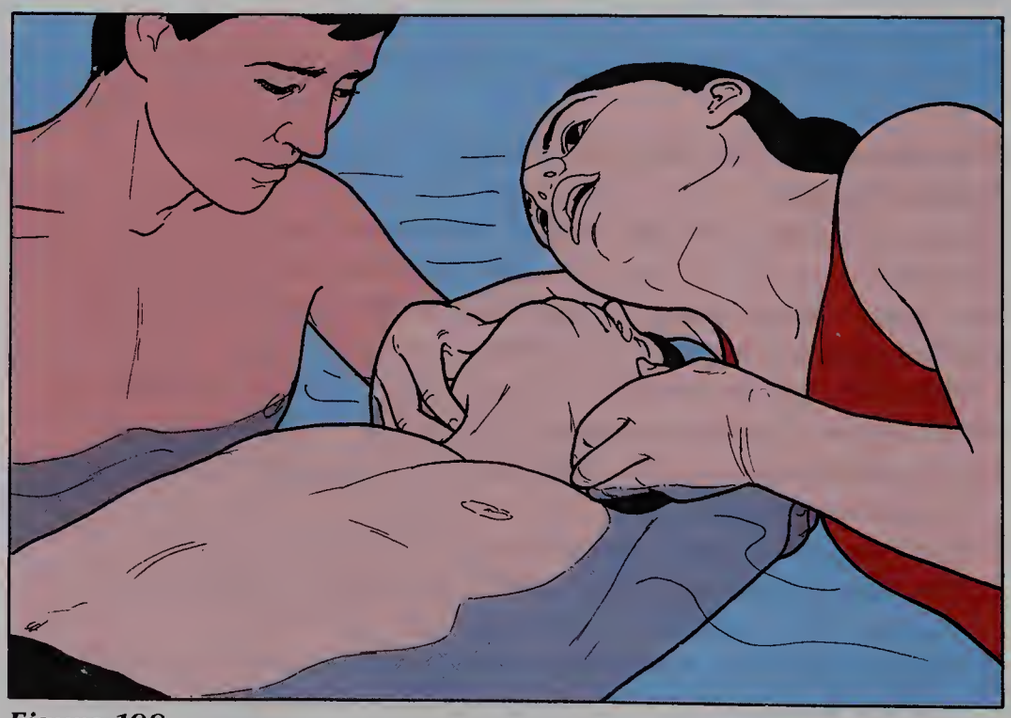


Figure 198
Modified jaw thrust

Detailed steps for learning the modified jaw thrust technique for rescue breathing are taught in the American Red Cross CPR: Basic Life Support for the Professional Rescuer course. This technique can be performed with relative ease on land but is more difficult to do in the water. It cannot be done if the technique known as the head/chin support (see pages 188–190) is used to stabilize the victim's spine. Therefore, it is best to remove the victim from the water as soon as possible if an airway problem is suspected.

Some facilities use a minimum number of lifeguards with little formal training. With spinal injuries, management of the victim can be improved if additional assistance is available. The procedures presented in this chapter were designed so that two trained lifeguards can provide the necessary immediate care while accompanied by as few as two assistants. To increase the number of trained people who may be available in an emergency, these emergency procedures for victims of suspected spinal injury should be included as part of the in-service training program. There should also be education demonstrations and seminars on these first aid rescue skills conducted in cooperation with local EMS personnel.

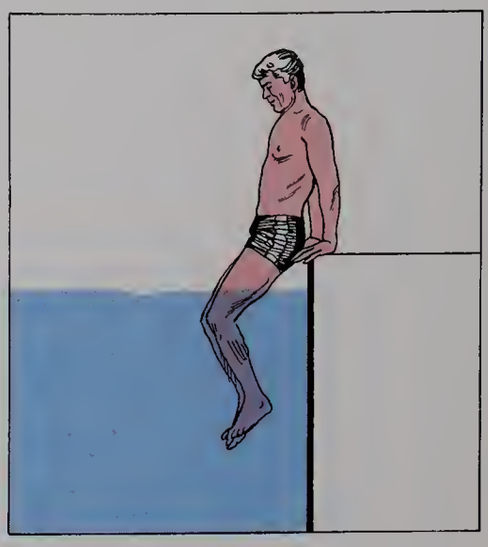


Figure 199
Ease into water

General Rescue Procedures for Victims of Suspected Spinal Injury

There are several different techniques you can use to stabilize a victim's spine. Regardless of which technique you use, the following procedures remain the same:

- **Activate your facility's emergency action plan.** Other staff then will know there is an emergency, notify the EMS, and be ready to assist you.
- **Approach the victim in the water carefully.** Do not jump or dive into the water near the victim. Instead, ease yourself gently into the water ***(Fig. 199).*** This reduces the possibility of causing any additional movement of the victim.

- **Reduce or prevent any movement of the victim's spine.** The victim's head, neck, and back must be immobilized. This immobilization, called in-line stabilization, prevents movement and initially is accomplished in the water with the lifeguard's hands, arms, or body, depending on which technique is used ***(Fig. 200).*** In-line stabilization means placement of the head in line with the rest of the body and reducing unwanted movement to the spine. The best way to achieve this is to have one lifeguard support the victim's head by placing his or her hands on each side of the victim's head and neck while the other lifeguard supports the spine. A proper in-line position is maintained without exerting pulling force on the body. The objective of spinal injury management is basically the same as the management of any fracture—to immobilize the joints above and below the site of the suspected fracture. In a case of suspected spinal injury, the joint above the cervical spine region means the head, and the joint below refers to the upper torso down to the hips.

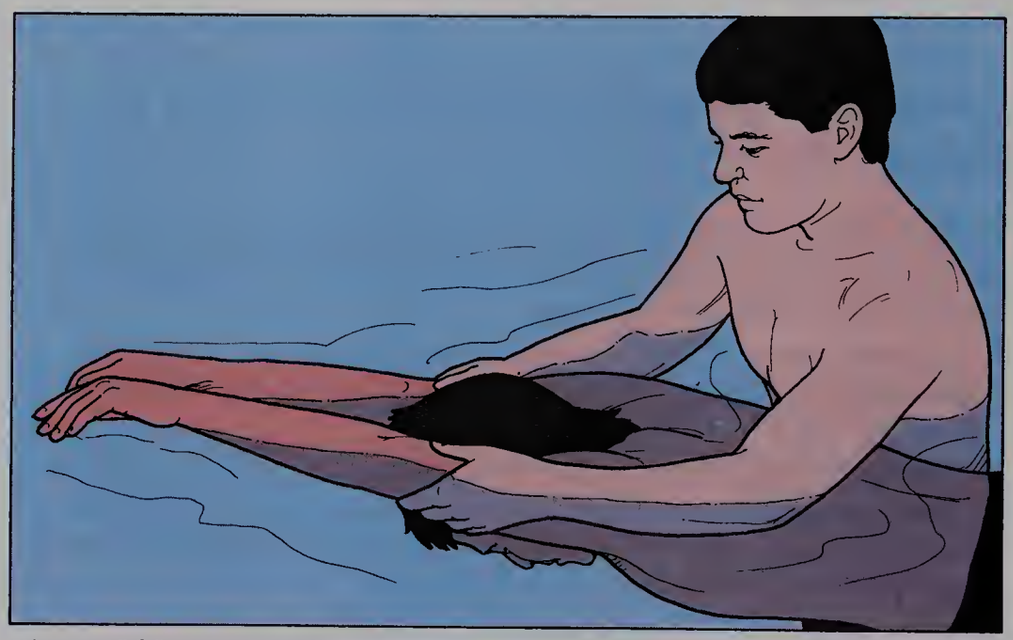


Figure 200
In-line stabilization

- **Move the victim to the surface of the water.** You must bring a submerged victim carefully to the surface before first aid can begin.
- **Rotate the victim to a horizontal position.** You must keep the victim's face out of the water to allow the victim to breathe.

- **Move the victim to shallow water, if possible.** In shallow water, you can more easily immobilize the victim, properly apply a backboard, and remove the victim from the water. If shallow water is not available in all parts of the facility (for example, the victim is in a separate deep-water pool), procedures for providing additional support to the lifeguard and the victim must be established and rehearsed before an emergency occurs. Swim fins or a shallow-water ledge or platform are useful to a lifeguard who is aiding a victim in deep water.
- **Check for breathing.** Once you have stabilized the victim's spine, check to see if the victim is breathing. A victim who can talk or is gasping for air is breathing. If the victim is not breathing, rescue breathing must be started as soon as possible. In most instances, this will require a second lifeguard using a modified technique in the water. However, it is much better to remove the victim quickly to care for a breathing problem, especially when using the head/chin support technique.
- **Position the backboard under the victim.** You must position the backboard under the victim without any unnecessary movement of the victim ***(Fig. 201).***

Figure 201
Position the backboard

- **Secure the victim to the backboard.** Strapping is an additional precaution you should take to secure the victim to the board and prevent additional injury to the spine ***(Fig. 202).*** Use a rigid cervical collar, a blanket or towel roll, and multiple straps or cravats.

Figure 202
Secure victim to backboard

- **Remove the victim from the water.** If it is necessary to remove the victim from the water prior to the arrival of EMS personnel, keep the backboard in a horizontal position ***(Fig. 203).*** Once the victim is on the deck, care for him or her in a manner that minimizes shock. Monitor the victim's breathing and circulation and keep the airway open until EMS personnel arrive. Provide rescue breathing, if necessary.

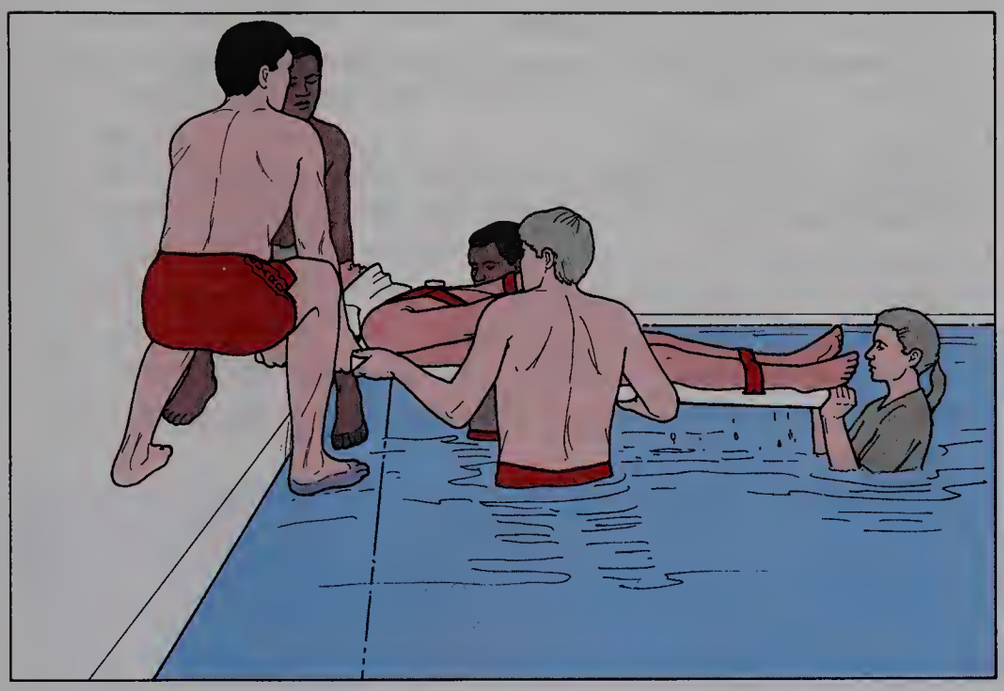


Figure 203
Remove victim from water

- **Keep the victim warm.** Hypothermia is a serious threat in spinal cord injury because the body's temperature regulation system may be damaged. Be sure to keep the victim warm.

Specific Rescue Procedures for Victims of Suspected Spinal Injury

The procedures presented here for rescuing a victim of suspected spinal injury from the water may be adapted to different situations. The procedures include several techniques for immobilizing or limiting the movement of a victim who has a suspected spinal injury. You should be familiar with each technique although you will only use one in an emergency.

When deciding which technique to use, you may consider the following:

- Buoyancy of the victim
- Buoyancy of the lifeguard
- Victim's size
- Lifeguard's size
- Power of the lifeguard's leg stroke
- Lifeguard's breath-holding capability
- Position of the victim—faceup or facedown
- Location of the victim—deep or shallow water, on or near the surface or underwater
- Wind and water conditions

Techniques for Stabilizing Victims of Suspected Spinal Injury in Shallow Water

Three rescue techniques can be used to provide care for victims of suspected spinal injury in shallow water. They are—

1. **Hip and shoulder support** (limits movement, but does not totally immobilize; for a victim who is faceup)—If the victim is faceup and no help is immediately available to assist in placing the victim on a backboard, you should support the victim at the hips and shoulders. This technique is for calm, shallow water only:
   - Stand facing the victim's side, and lower yourself to chest depth.
   - Slide one arm under the victim's shoulders and the other under the hip bones, and support the victim keeping the face clear of the water for breathing ***(Fig. 204).***
   - Do not lift the victim, but maintain the victim in a horizontal position in the water until help arrives.
   - Comfort and reassure the victim.

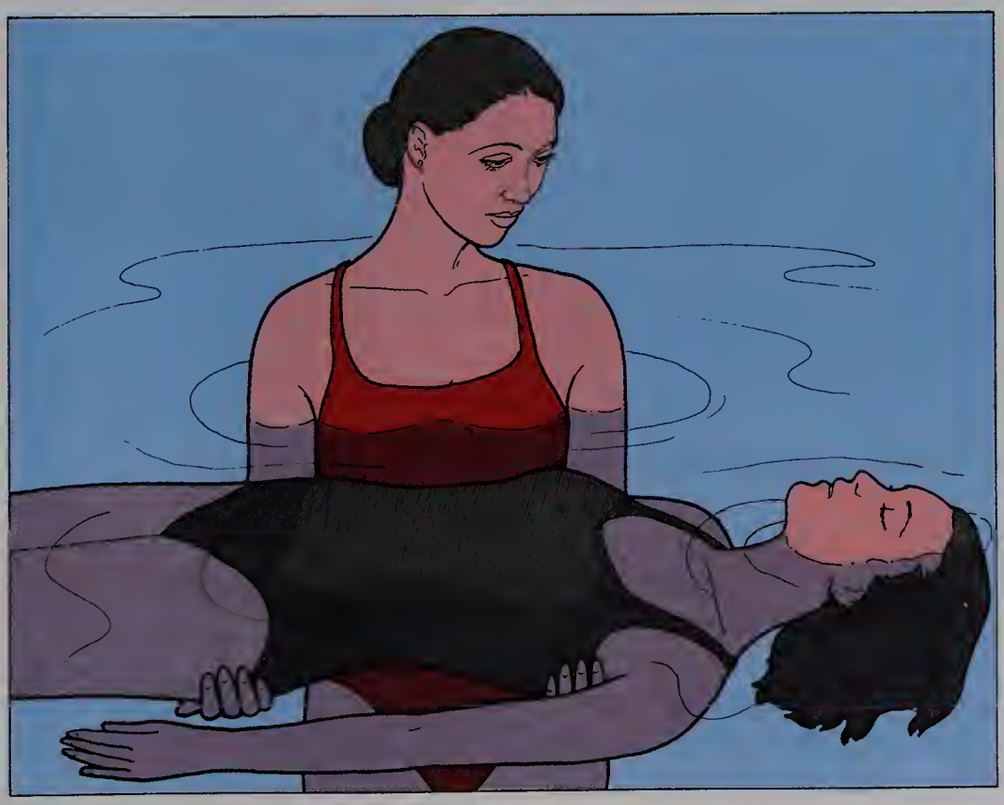


Figure 204
Hip and shoulder support

2. **Head splint** (immobilizes; for a victim who is facedown)—If the victim is facedown in the water, you must immediately turn the victim faceup so he or she can breathe. This technique can be used in shallow or deep water and is equally good for calm or choppy water conditions. To do this while immobilizing the victim's head and neck, you should—
   - Face the victim's side.
   - Gently float the victim's arms up alongside the head, parallel to the surface. Do this by grasping the victim's arms midway between the shoulder and elbow ***(Fig. 205).***

Figure 205
Head splint—grasp victim's arms

- With your right hand, grasp the victim's right arm. With your left hand, grasp victim's left arm. Position the arms so they are extended against the victim's head ***(Fig. 206).***
- When the victim's arms are extended over the head and in line with the body, apply pressure to the arms to splint the head. Your hands will be approximately at the victim's ears. This technique for stabilizing the head provides in-line stabilization.
- Lower your body to chest depth in the water and start to move the victim slowly forward to a horizontal position, gliding the victim's body to the surface. This reduces body twist when the turn is made.

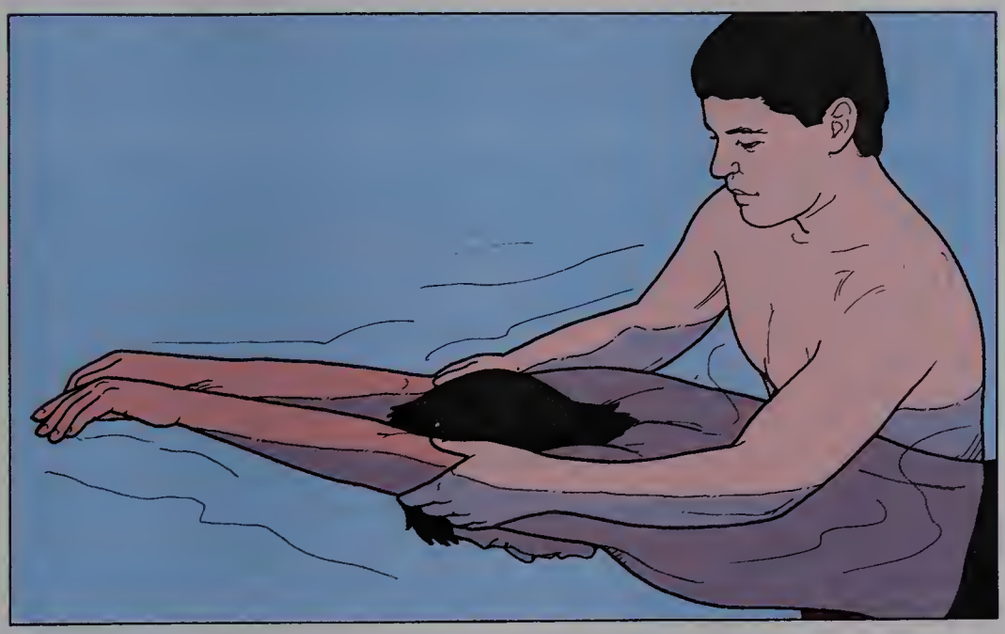


Figure 206
Head splint—position arms against victim's head

Figure 207
Head splint—rotate victim faceup

- As the victim becomes horizontal in the water, continue moving and rotate the victim toward you by pushing the victim's arm that is closer to you underwater while pulling the victim's other arm across the surface to turn the victim faceup ***(Fig. 207).*** As you do this, lower your shoulders in the water.
- Rest the victim's head in the crook of your arm, but not on your arm.
- Keep the victim's head in line with the rest of the body in the water until help arrives.
- Second rescuer can assist with in-line stabilization.

Note: There are times when tanning oils will make the victim slippery and difficult to hold while in the water. Be certain to support the victim securely. In some cases, giving this support will require that you use both your hands to hold on to the victim's arms until help arrives.

3. **Head/chin support** (immobilizes; for a victim who is either faceup or facedown)—You can use this technique on any victim of a suspected spinal injury in the water. It can be used in any type or condition of water.

To immobilize a victim's spine using the head/chin support, you should—

- Position yourself at either side of the victim.
- Lower your body until your shoulders are at water level.
- Place your forearms along the length of the victim's breastbone and spine. Based on the size of the victim, you may position your top arm on the breastbone by reaching either over or under the victim's nearer arm. Place the thumb of one hand on one side of the victim's chin and the fingers on the other side ***(Fig. 208).*** Do not apply pressure yet.
- At the same time, use your other hand to support the victim's head by spreading the fingers and cradling the head. Do not apply pressure yet.
- Lock both of your wrists and squeeze your forearms together, clamping the victim's chest and back between them. Apply gentle pressure to the chin and the back of the head. You are now providing in-line stabilization.
- Glide the victim forward to a horizontal position.

Figure 208
Head/chin support—hand position

Figure 209
Head/chin support—rotate victim faceup

- If the victim is facedown, turn the victim faceup. To do this, keep your hands in position under the victim's chin and at the back of the victim's head, supporting the head. Rotate the victim toward you while you begin to submerge yourself. Carefully roll under the victim while turning the victim over in the water. The victim is faceup when you surface on the other side ***(Fig. 209).*** This movement must be done slowly to avoid any twisting of the victim's body.
- Maintain the victim in a horizontal position in the water until help arrives.

- When sufficient help arrives, have a second lifeguard assist in keeping the victim's head in line with the body ***(Fig. 210).***

Figure 210
Head/chin support—in-line stabilization by second lifeguard

The head/chin support technique can be used with a victim who is submerged and who may be lying on his or her front, back, or side. Victims with spinal injuries are rarely found on the bottom in deep water. However, if you do encounter a victim in this position, you should use the head/chin support and bring the victim to the surface at a 45-degree angle. Using this technique, you then can move the victim to shallow water. Always try to exercise extreme caution to minimize any movement of the victim's head or neck.

Securing the Victim to a Backboard

After stabilizing the victim's head and neck by using one of the previously described techniques, you are ready to secure the victim to a backboard. This can be done with as few as two trained lifeguards and two assisting bystanders. Begin by placing a backboard under the victim as follows:

- The initial lifeguard stabilizing the victim's spine provides direction to the assistants, directing them to—
  - Bring the backboard into the water and approach the victim from the side.
  - Place the backboard diagonally under the victim from the side, with the foot end of the board going down in the water first ***(Fig. 211).***
  - Hold the board under the water so it doesn't bump against the victim, slide it under the victim, and position it lengthwise along the victim's spine. Make sure the board is beyond the victim's head near the lifeguard maintaining in-line stabilization.
  - Allow the board to rise under the victim. At least one assistant should be along each side of the board.

Figure 211
Position the backboard

Figure 212
Place cervical collar

Figure 213
Secure victim's shoulders

- The second lifeguard assists by placing his or her hands on the sides of the victim's head to help minimize movement.
- The initial lifeguard stabilizing the victim's spine withdraws his or her arms slowly and carefully as the board is raised into place against the victim.
- After the board is in place and while a second lifeguard holds the head in line with the body, the initial lifeguard carefully applies a rigid cervical collar of the appropriate size. The cervical collar should fit securely with the chin in the proper resting position and with the head maintained in the neutral position by the collar ***(Fig. 212).***
- To secure the victim's body after the cervical collar is in place, the initial lifeguard should—
  - Secure the victim's shoulders by crisscrossing the chest with straps or cravats and securing them at the sides ***(Fig. 213).*** The straps should be snug, but not so tight as to restrict movement of the chest during normal breathing.
  - Secure the strap across the victim's hip bones.

- Secure the victim's hands along his or her side or in front of the body ***(Fig. 214).***
- Secure the victim's thighs and legs to the backboard ***(Fig. 215).***

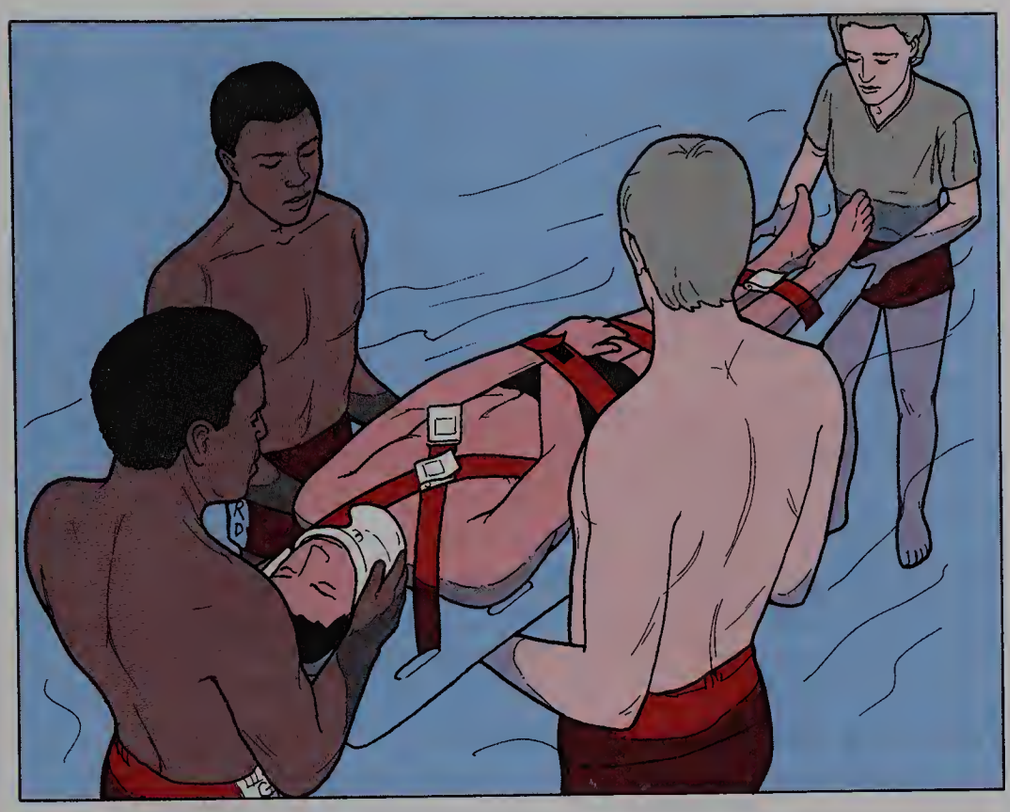


Figure 215
Secure thighs and legs

- Keep the victim's head in line with the body. Before securing the head to the board, it may be necessary to place padding, such as a folded towel, under the victim's head ***(Fig. 216).*** The amount of padding needed will be evident from the space between the board and the head while the second lifeguard holds the head in line with the body. About one inch of padding is all that is needed to keep the head in a neutral position and provide comfort for the victim.
- Place a towel or blanket roll in a horseshoe configuration around the head and neck of the victim ***(Fig. 217).***

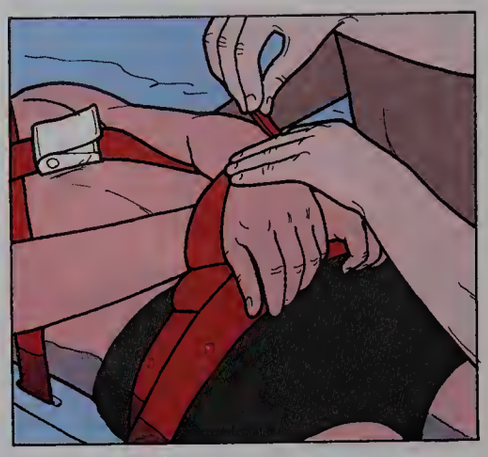


Figure 214
Secure victim's hands

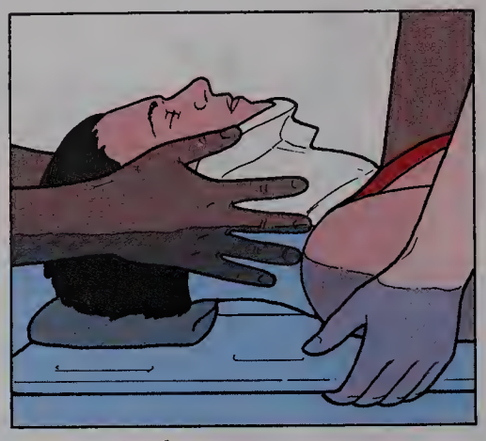


Figure 216
Padding under head

Figure 217
Secure head with blanket or towel

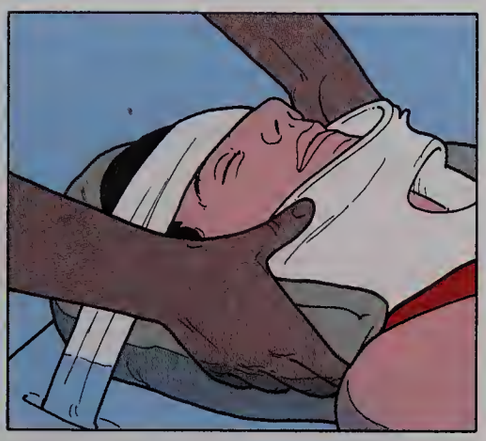


Figure 218
Secure head

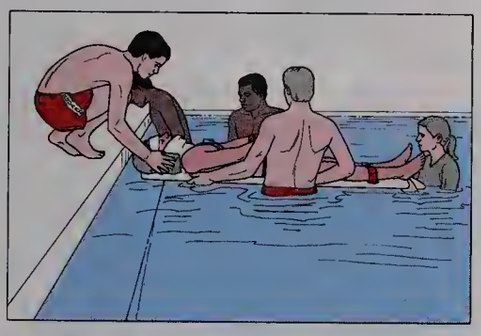
- Secure the victim's head with whatever material your facility uses ***(Fig. 218).*** This could include Velcro straps, cravats, cling, or other conforming material. Instead of the towel rolls, some EMS systems provide head immobilizing kits that secure the head to the board. Your facility must make the decision regarding what to use.

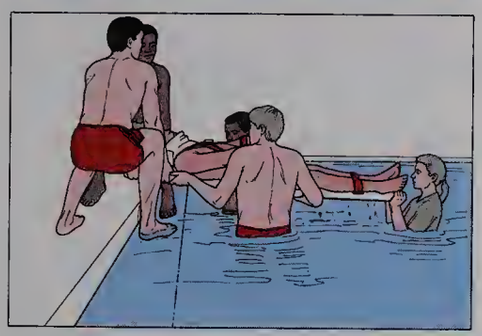
Note: Alternate methods of strapping may be used provided they meet the objectives for immobilization of the spine.

If you are using the head splint technique to stabilize the victim's spine, there will be only slight differences for the boarding procedure.

When additional help arrives, a second rescuer can assist with in-line stabilization. This can be done by having the second rescuer slip his or her hands carefully between the victim's arms and the sides of the head.

As the backboard is raised into place, the first rescuer releases the hold and removes his or her arms. The victim's head is now supported in line with the body by the second rescuer. This second rescuer carefully adjusts his or her hands so that the sides of the victim's head have secure support. The victim's arms are gently positioned at his or her side. The cervical collar is applied, and all other techniques for boarding remain the same.





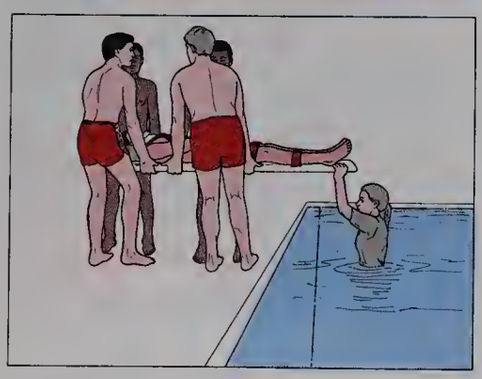


Figure 219
Remove board

Removing the Victim From Water

Once the victim is secured to the backboard, remove the victim from the water. The lifeguard at the head should direct the removal as follows:

- If in a pool, move the victim to the side of the pool.
- Position the board perpendicular to the side of the pool. The board should be kept as horizontal as possible while it is being removed.
- Remove the board headfirst ***(Fig. 219).*** You may have to tip the board at the head to break the initial suction holding it in the water.
- If EMS personnel have arrived, they will be available to help in the removal of the victim.

Note: In some areas, EMS personnel may not go in the water.

- If additional bystanders are available, they can help lift or slide the board onto the pool deck. The person at the victim's head either can move to the pool deck or help at the side, depending on how many persons are available to help.
- Once the victim is removed from the water, monitor the victim's consciousness, breathing, and pulse.

Techniques for Stabilizing Victims of Suspected Spinal Injury in Deep Water

Fortunately, it is rare for a person to suffer a spinal injury in deep water. If the injury occurs in deep water, move the victim to shallow water, if possible.

Lifeguards at deep-water pools should have access to shallow water. For pools without shallow-water access, lifeguards should have swim fins available at their chair. Fins will help the lifeguard to move easily and keep the victim of a suspected spinal injury on the surface until additional help arrives. A shallow-water ledge or a platform also is helpful.

Two techniques can be used for limiting the movement of or immobilizing victims of suspected spinal injury in deep water. They are—

1. **Head splint**, which is done as follows:
   - The initial lifeguard keeps the victim afloat as described under "Head Splint" on page 186. The initial lifeguard maintains the head splint, using the victim's arms.
   - If the initial lifeguard cannot get the victim to shallow water, he or she maintains the head splint and swims to the edge of the pool or a ladder area where another lifeguard can help support the initial lifeguard and the victim.
   - Once additional help is available, someone holds the victim's feet at the surface while others place a backboard under the victim.
   - An additional lifeguard lies or kneels on the deck and helps keep the victim's head in line with the body.
   - As the board is moved upward, the initial lifeguard releases the victim's arms.
   - The victim's arms are gently positioned at his or her sides,.
   - The placement of the cervical collar, strapping, and removal from the water now continue.
2. **Head/chin support,** which is done as follows:
   - Use the head/chin support technique to turn the victim faceup, if necessary, so the victim can breathe.
   - Keep the victim afloat as described in the section on Techniques for Stabilizing Victims of Suspected Spinal Injury in Shallow Water on pages 185–190.
   - Tread water with swim fins on or swim in wide circles with the victim until additional help is available. If a platform is available, use it.
   - Swim with the victim to the closest corner or pool ladder and wait until a second lifeguard can help provide support. If using a pool ladder, place your foot on one of the steps for temporary support.
   - Once additional help is available, someone holds the victim's feet at the surface while others place a backboard under the victim.

- An additional lifeguard lies or kneels on the deck and helps keep the victim's head in line with the body.
- When positioning the victim's arms at his or her sides, care should be taken to avoid any abrupt movements.
- The placement of the cervical collar, strapping, and removal from the water now continue.

13 Special Situations

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204 Surface-Supplied-Air (SS-Air) Equipment

206 Hypothermia and Exposure to Cold Temperatures

210 Rescues in Cold Water

212 Heat Emergencies

Seizures

The normal functions of the brain can be disrupted by a variety of conditions, such as injury, infection, or disease. When this occurs, the electrical activity of the brain can become irregular. This irregular activity can cause sudden, uncontrolled muscle contractions known as seizures.

There are several types of seizures, ranging from those characterized by brief loss of consciousness without muscular contractions (petit mal), to those with loss of consciousness and violent muscular contractions (grand mal).

Signs and Symptoms of Seizures

In the same way that types of seizures differ, so do the signs and symptoms. Someone experiencing a petit mal seizure may suddenly stare off into space for a few seconds and then return to full alertness without experiencing any muscular contractions. Someone experiencing a grand mal seizure will usually have the following signs and symptoms:

- An aura, which is a peculiar sensation that may precede a seizure. It usually lasts a few seconds and may consist of visual or auditory hallucinations, a painful sensation, a peculiar taste in the mouth, awareness of a smell, or a sensation warning the victim to move to safety.
- Rigidity of the body, which may be preceded by a high-pitched cry.
- Loss of consciousness.
- Uncontrolled muscular movement, during which the victim may lose bladder and bowel control. The victim may also salivate, hold his or her breath, and clench the jaw. The heart rate will increase.
- Once the seizure has subsided, the victim will enter a state of drowsiness and confusion, will gradually regain consciousness, and may complain of a headache.

First Aid for Seizures

First aid care for an individual experiencing a seizure includes the following:

- Prevent the victim from being injured. If on land, clear the area of any hard or sharp objects and loosen the victim's clothing if it is tight.
- Do not restrain the victim if he or she is having muscular contractions.
- Do not place anything in the victim's mouth.
- Turn the victim on his or her side if necessary to allow saliva or vomit to drain from the mouth.
- Have someone phone the emergency medical services (EMS) system.

- Stay with the victim until trained medical professionals arrive. Continue to monitor the victim's breathing. If breathing stops at any time, begin rescue breathing according to the procedures defined by the American Red Cross.
- Provide an area where the victim can rest and be observed. Be reassuring and supportive. Protect the victim's privacy by removing onlookers.

All individuals who have had a seizure in the water and who have been submerged, regardless of their apparent recovery once out of the water, should receive care from a trained medical professional. In the case of a minor or a mentally incompetent individual, inform a parent or adult guardian of the seizures.

An individual who has a seizure while in the water presents additional problems. First, the victim will go under the water quickly, probably without warning or a call for help. Second, the victim will not be able to assist in his or her own rescue. There will not be any resistance to rescue, however, except possibly from convulsive spasms. Third, the victim probably will have an unprotected airway and may breathe in a large amount of water. Any swimmer who has inhaled large quantities of water, especially fresh water, may develop significant life-threatening medical complications within 30 to 60 minutes. Once the victim has been removed from the water, it will be difficult to determine whether abnormalities in the victim's condition are due to a near-drowning or to the aftereffects of the seizure.

If a swimmer is suffering a seizure in the water, your first efforts should be to support the victim so that the head and face remain above the water to provide a clear airway. The use of flotation equipment for the victim may be helpful in this situation. It is advisable to remove the victim from the water if possible so that the victim maintains an adequate airway. Have someone call the EMS system.

Once the victim is removed from the water, the victim's breathing and pulse must be checked. Once you are sure the victim is breathing, position the victim on his or her side to allow any fluids to drain from the mouth. The victim now should be cared for in the same manner as those having seizures out of the water.

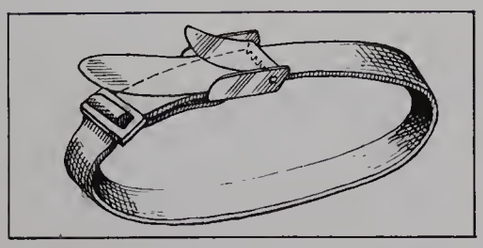

Figure 220
Belt with quick-release buckle

Rescue of a Scuba Diver

Scuba diving as a sport has increased in popularity, and many swimming pools have lifeguards or maintenance personnel who perform various maintenance functions while using scuba equipment. Therefore, it is possible that a lifeguard may be called upon to rescue a scuba diver who is in distress. In areas where scuba diving is allowed, you should seek additional training in recognition of pressure-related maladies or injuries and the functioning of the different types of scuba equipment such as quick-release buckles and buoyancy compensating devices (BCDs).

If you are a non-scuba-equipped lifeguard called on to rescue a scuba diver, you should try cautiously to approach the diver to evaluate his or her condition before deciding what steps to take. If the victim requires rescue breathing, you must transport him or her to the surface. In this case you should release the victim's weight belt. You also may have to inflate the victim's BCD. (Divers in warmer waters may or may not be wearing a wetsuit.) It is best to hold the victim by the waist in an upright position from behind during transport to the surface. You must get a victim who is not breathing to the surface as quickly as possible. Once you have reached the surface with the victim, begin rescue breathing, making sure you keep water out of the victim's mouth and nose so you don't blow it into the victim's lungs.

If a scuba diver who is wearing a BCD, a tank and regulator, a mask and fins, and a weight belt needs to be rescued underwater, the rescuer should follow the rescue procedure described below. The word **ARTIB** is an acronym for **A**ssess, **R**elease, **T**ransport, **I**nflate, **B**reathe.

First, take a deep breath and surface dive to the side of the victim. Leave the victim's mouthpiece where it is found. Then—

- **Assess**—During the approach, assess the victim's condition. (Bubbles may indicate the victim is breathing.) Unconscious divers tend to float faceup. If a diver is conscious and panicky, it is a sign that the non-scuba-equipped lifeguard should be **very** cautious in the way he or she undertakes the rescue.

  Note: Use the following steps only if the victim is passive (semiconscious) or unconscious. The victim's ability or inability to breathe determines the rescue technique used.
- **Release**—Remove the weight belt by releasing the quick-release buckle ***(Fig. 220).*** Pull the belt clear of the victim before final release.

- **Transport** (bringing victim to the surface)—Get the victim in a vertical position, controlling him or her from the back by grasping the victim around the waist or chest with your left hand, while using your right hand to hold the tank valve. If the victim is unconscious but breathing, hold the second stage of the regulator ***(Fig. 221)*** in the victim's mouth during the ascent. If the victim is not breathing, get him or her to the surface as quickly as possible and begin rescue breathing if necessary; do not be concerned about the possibility of decompression sickness (DCS) caused by rapid ascent. A victim who is not breathing requires oxygen as soon as possible. DCS is a secondary problem, not an immediate threat to life as is oxygen deprivation. When you reach the surface, tilt the victim's head back to open the airway ***(Fig. 222)*** and begin rescue breathing if necessary.

  If the victim is not having difficulty breathing, you can ascend with him or her at the rate of 1 foot per second to avoid DCS.

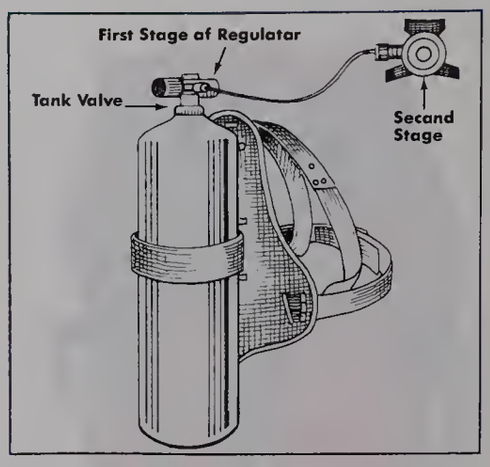

Figure 221
Tank with regulator

Figure 222
Tilt victim's head back to open the airway

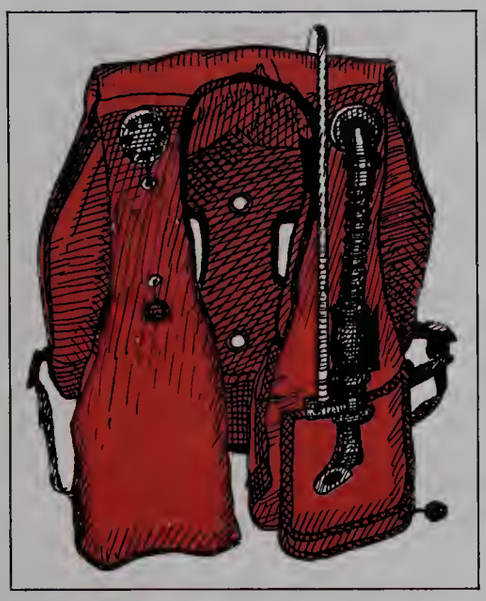

Figure 223
BCD with power inflator

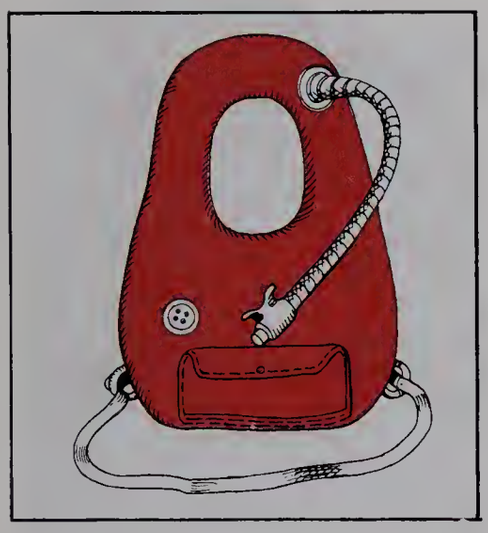

Figure 224
BCD with oral inflation tube

- **Inflate**—If the victim is equipped with a wetsuit, its natural buoyancy will support him or her during the ascent. To provide additional buoyancy, you can inflate the BCD. There are two ways to do this:
  1. **Power inflator**—You can inflate some newer BCDs by using a power inflator ***(Fig. 223).*** There are various styles of power-inflator connectors; therefore, lifeguards in areas where scuba diving is permitted should become familiar with the types of equipment used by scuba divers.
  2. **Oral inflation tube**—The oral inflation tube ***(Fig. 224)*** is usually located high on the chest of the BCD or on the collar on the diver's left side. Most BCDs have a button on the end of the oral inflation tube that must be pressed to open the valve in order to blow air into the BCD. Beware of expanding air in the BCD during ascent. You should be prepared to vent some of the air if the ascent becomes uncontrollable.

     In some cases, it may be necessary to remove scuba equipment to get the victim to the surface as quickly as possible. However, you should remember that if the victim is not wearing a wetsuit (or inflatable drysuit), it is important **not** to ditch the BCD even when the scuba tank is attached.
- **Breathe**—Upon reaching the surface, turn the victim faceup. Immediately remove the victim's mask and mouthpiece. If the victim is not breathing, give 2 full breaths into the victim's mouth.

  Continue rescue breathing, if necessary, while towing the diver to safety, where the required first aid, rescue breathing, or cardiopulmonary resuscitation (CPR) can be administered properly. Remove scuba gear before the victim is taken from the water.

  You can maintain a firm hold on the diver and be in a position to administer the breaths if the diver is held in a do-si-do position. A strong kick is needed to maintain this position.

The victim should be placed flat on his or her back on a hard surface and treated for shock. If 100 percent oxygen is available, administer it immediately by demand-valve mask resuscitator. If the victim experiences nausea, place the victim on either the left or right side to maintain an open airway.

If the local EMS cannot adequately handle a diving emergency, it is important to have the contact information for the nearest operational recompression facility, or the Diver Alert Network (DAN). The DAN telephone numbers, which are (919) 684-8111 for emergency calls and (919) 684-2948 for regular calls, are especially important to divers because they provide 24-hour access to the only nationally coordinated diving emergency information center in the United States. (Collect calls are accepted in emergencies only.) DAN is particularly useful for medical personnel who are unfamiliar with diving accidents and need to consult with medical experts knowledgeable in diving medicine. In addition to consultation, DAN can coordinate all phases of treatment for the diving casualty through its network of personnel and facilities.

Mouth-to-Snorkel Breathing

A technique has been developed for giving rescue breathing to a nonbreathing scuba diver through a snorkel. The technique is called mouth-to-snorkel breathing. The rescuer first gives a few full mouth-to-mouth breaths to the victim, then gives abdominal thrusts to clear the airway if the airway appears blocked. The rescuer then places one end of the snorkel in the victim's mouth and gives rescue breathing through it.

More extensive information on mouth-to-snorkel breathing can be found in *Scuba Life Saving* published in 1985 jointly by the Council for National Cooperation in Aquatics (CNCA) and the Royal Life Saving Society of Canada.

Surface-Supplied-Air (SS-Air) Equipment

Many modern aquatic facilities that have large swimming pools and deep diving wells have lifeguards or maintenance personnel who clean and vacuum the pools while using breathing equipment that is surface-supplied-air (SS-Air). This cleaning should be done when the facility is closed. However, at times it may be necessary to use the equipment while swimmers are in the pool. In either situation, there are certain steps that must be taken by personnel who use the equipment and also by the lifeguards who may have to rescue someone who uses it. A thorough training program is required for anyone who will be using SS-Air equipment. This program should include study of the types, use, and maintenance of all equipment; the physics of diving; and the injuries related to diving.

Safety

Never use SS-Air equipment alone. No one should use SS-Air equipment unless there is another person on the deck to act as a tender/safety diver. The tender/safety diver is responsible for monitoring the diver's air supply and for assisting or rescuing the diver if necessary. This person watches for regularly spaced bubble patterns at the surface, keeps other people clear of the diver and equipment, and is trained and equipped to enter the water immediately if necessary.

The diver should wear a safety harness or belt with a lifeline and air supply hose attached. The air supply hose should be slack when the lifeline is pulled taut. This will prevent a disabled diver's face mask from dislodging if he or she is pulled to the surface by the tender/safety diver.

Communications

The personnel who will be involved with the use of SS-Air equipment must all be completely familiar with the communications system that is used at their aquatic facility. There are various systems including those described below:

- **Underwater communications systems,** such as those used by competitive or synchronized swimming teams, may be used to communicate with the diver. However, since this is a one-way line of communication, its use is limited.
- **Line signals** can be a two-way communication system. Each signal that is sent is immediately answered by the receiver. For example, the diver signals, "Give me slack." The tender signals back, "Give me slack," and provides slack in the lifeline. The signals are sent by a sequence of tugs on the line:
  - 1 tug on line—I'm all right.
  - 2 tugs on line—Give me slack.
  - 3 tugs on line—Take up slack.
  - 4 tugs on line—Pull me up, nonemergency.
  - 5 or more tugs on line—Pull me up, emergency.

Rescue Procedures

The most common problem facing a diver using SS-Air equipment is getting tangled in or fouling the lifeline. If this occurs, or if there is some other problem with the diver, the lifeguard who is on the deck should work with the line tender and follow these three steps:

1. **Taking in slack**—The line tender takes in the slack of the lifeline by pulling the line slowly. **The line tender should never pull on the air supply hose;** doing so could pull the face mask off the diver.
2. **Freeing fouled line**—If it appears that the line is snagged or fouled after the slack is taken up, enter the water and follow the line to the point where it is fouled. Free the line, if possible, and then return to the surface.

   If it is not possible to free the fouled line, swim to the diver and release the lifeline from the diver. Then bring the diver to the surface.
3. **Surfacing**—You must be careful not to get tangled in either the air supply hose or the lifeline when bringing a diver to the surface. Hold the diver with one hand under his or her armpit or in a modified cross-chest carry. Your other arm should stabilize the diver's head in an erect position. The rate of ascent should be approximately 1 foot per second. However, for a lifeguard without diving gear, the easiest way to maintain a safe ascent rate is to travel no faster than the smallest bubbles as they ascend.

   If there is a need, administer 2 full breaths to the diver. If necessary, rescue breathing should be started as soon as possible. The diver must be removed from the water if CPR is required.

Hypothermia and Exposure to Cold Temperatures

Lifeguards need to know about exposure to cold temperatures and the potential for hypothermia. This section deals with the causes and effects of exposure to cold temperatures, the signs and symptoms of hypothermia, and first aid for hypothermia victims. Methods of preventing hypothermia and treatment of victims of hypothermia also are presented.

Hypothermia

Hypothermia refers to a low body temperature, specifically a low body core temperature (temperature of the vital organs). Hypothermia occurs when cold or cool temperatures cause the body to lose heat faster than it can be produced and the body core temperature falls below normal.

Factors that influence the onset and progression of hypothermia are—

- Air and water temperatures.
- Wind speed.
- Length of exposure.
- Amount and type of clothing worn.
- The individual's age, body size, and body build.
- The mental and physical condition of the individual.
- Acclimatization to cold-water exposure.

The body loses heat through the following processes:

- **Conduction**—Heat lost through body contact with a cold object, such as water or the ground.
- **Convection**—Heat lost through air or water movement around the body.
- **Radiation**—Heat lost to still air that surrounds the body, such as cold air with no wind.
- **Evaporation**—Heat lost through water evaporating on the skin, such as perspiration.

Signs and Signals

When the body temperature begins to drop, the body reacts to correct the heat loss. The body reduces the flow of blood to the extremities in an attempt to prevent further heat loss. Shivering—usually a series of rapid, involuntary muscle contractions—is an example of the body's efforts to increase heat production. The following list identifies the body's reactions to decreases in body core temperature.

Degree of Hypothermia	Description
Mild	The victim is conscious and alert but breathing deeply. There is vigorous uncontrollable shivering. The ability to perform simple tasks is impaired.
Moderate	The victim is conscious but mental faculties and speech are impaired. The voice is lowered. There is loss of coordination. The victim performs simple tasks with much difficulty. Shivering lessens.
Severe	The victim may be unconscious. Mental faculties are severely impaired. Shivering is replaced by muscle rigidity (stiffness). The victim's skin may become cyanotic (bluish). Respiration and pulse become slower. The victim is totally unable to perform simple tasks.
Very Severe	The victim is usually unconscious. This state may be preceded by irrationality. Respiration and pulse continue to slow. Rigidity (stiffness) persists. Abnormal cardiac and respiratory rhythms may occur.
Critical	The victim is unconscious and reflexes are not functioning. Respiration is barely detectable. There is severe cardiac irregularity leading to ventricular fibrillation, cardiac arrest, and death.

Caring for Mild to Moderate Hypothermia

Swimmers under age 12 are especially vulnerable to cold water. Be alert to individuals showing the first signs of hypothermia, such as bluish lips or shivering. These swimmers should be moved to a warm area. If they are not already indoors, move them indoors. Keep them in an area where there is little air movement, such as an office or first aid room. Cover them with a blanket until the hypothermia symptoms disappear. You may give warm liquids. Do not give alcoholic beverages or those containing caffeine.

Caring for Severe to Critical Hypothermia

Swimmers exhibiting the signs and symptoms of severe to critical hypothermia should be handled as carefully as victims of spinal injuries and kept in a horizontal position. Call the EMS system immediately.

Do not allow these victims to move around after being removed from the water. Do not rub or massage the victim's extremities. Any form of exercise will increase the flow of cold blood from the extremities back to the body core, which will increase the chances for "afterdrop." Afterdrop is the further decrease of an already lowered body core temperature. It is caused by cold, metabolically inbalanced blood being sent from the extremities of the body back to the core. The effect of this blood on highly sensitive heart tissue can lead to cardiac irregularities, such as ventricular fibrillation or cardiac arrest. Afterdrop can be fatal, especially to those victims whose core temperature is 90.33°F or below.

Following are the first aid procedures for swimmers who are victims of severe to critical hypothermia:

- Call the EMS system immediately.
- Maintain an open airway for the victim, if necessary. Begin rescue breathing or CPR, if necessary. Before starting CPR, you may need to check the victim's pulse for up to 1 minute because of the slower pulse rate in hypothermia victims.
- Prevent further heat loss. Allow the body temperature to return to normal gradually. Provide warm, dry clothing. Wrap the victim in blankets, dry towels, several layers of clothing, or all of these items. Avoid touching the victim with hot objects. If available, hot water bottles, heating pads, or chemical heat packs can be used, but they should be wrapped in a towel or blanket to prevent them from burning the victim. They should be used to rewarm only the trunk, groin, neck, and head, since these areas of the body have the highest rates of heat loss. These areas, however, also transfer warmth to the body core faster than the extremities. Do not apply warming items, such as heating pads, to the extremities. The warmth will dilate the blood vessels in the extremities, allowing cold blood to return more rapidly to the body core.
- Give warm liquids, such as broth, if the victim is conscious and able to swallow. Do not give liquids to an unconscious victim.
- Do not allow the victim to smoke. Nicotine reduces circulation to the skin, which increases the risk of cold injury.
- Do not give the victim any alcoholic beverages or any beverages containing caffeine. Alcohol and caffeine both cause increased urination, which can interfere with the body's defenses against hypothermia. Alcohol prevents the normal shivering response and therefore decreases heat production.
- Any victim of severe to critical hypothermia must receive immediate medical care.

Sudden Immersion in Cold Water

A serious concern for lifeguards is the sudden immersion of an individual in cold water. Whether a person falls accidentally into cold water or intentionally enters cold water without proper protection for the body, major changes in body functions can lead to unconsciousness and subsequent drowning.

Immersion in cold water, especially if it is sudden, causes the following reactions in the body:

- **A gasp reflex,** which is a sudden uncontrollable attempt to "catch one's breath." If the face is underwater, this reaction could result in uncontrolled aspiration of water.
- **Hyperventilation,** which is the rapid taking in of oxygen and blowing off of carbon dioxide. This action could also result in the aspiration of water if the person's face is submerged or the mouth is at or near the surface of the water.
- **An increase in the heart rate and change in the blood pressure,** which may result in cardiac arrest or arrhythmia.

Preventive Measures

Lifeguards at open-water facilities should try to educate users about the dangers of cold water and air, whenever possible. Instructional periods and demonstrations will help to develop a safe attitude. Signs and posters describing preventive measures and self-help techniques should be posted at all waterfront and small-craft areas.

Users can take the following preventive measures:

- Dress properly for cold weather. Several layers of light clothing are better than one heavy layer.
- Always wear a personal flotation device (PFD) when taking any small boat out, especially on cold water or in cold weather.
- Never go boating alone. Have at least one other responsible person aboard. Always go boating in an area that is frequented by other boaters who can give help if necessary.

Following immersion in cold water, you should first try to get as much of your body out of the water as possible. The body loses heat many times faster in water than in air of the same temperature. If you fall into cold water while boating, you should get back aboard the boat or climb onto the hull if the boat is capsized, using as little energy as possible.

If you are immersed in cold water and cannot get out immediately—

- Put on a life jacket as soon as possible, if you are not already wearing one.
- Check to see that others involved in the mishap are all right.
- **Do not** attempt to swim to shore. Physical activity releases heat and permits cold water to flow through clothing, which will chill your body more rapidly.

Note: In 50°F water, even good swimmers find it difficult to cover more than half a mile.

Figure 225
HELP position

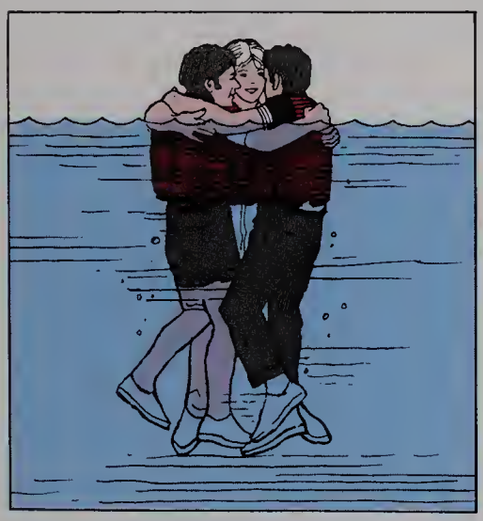

Figure 226
HUDDLE position

- **Do not** remove any clothing, since clothing provides some insulation against heat loss.
- **Do not** perform survival floating (drownproofing), since in this technique you put your head in the water. Wearing a life jacket will help to maintain your head above water. If you don't have a life jacket or other flotation device, you can keep your head above water by treading water as slowly as possible.

If it doesn't look as if you'll be rescued right away, you can increase your protection against the cold by putting on a life jacket that covers your sides and by assuming the HELP ***(Fig. 225)*** or HUDDLE ***(Fig. 226)*** position. Never try to use the HELP or HUDDLE position in swift currents.

You should get out of the water at the first opportunity. If initial attempts to get out of the water fail, you should remain as motionless as possible to minimize heat loss. Continued movements will exhaust you and hasten the onset of hypothermia.

A victim who is removed from the water should receive the same first aid care as a hypothermia victim.

Rescues in Cold Water

Recent studies on cold-water survival have found that some people who are presumed dead after being underwater for an extended period of time may retain enough air in their lungs and oxygen in their bloodstream to sustain life and prevent brain damage. This is attributed to a response called the **mammalian diving reflex.** This reflex is a complex series of body functions that reduces blood circulation to most parts of the body but not to the heart, lungs, and brain. It allows oxygen-carrying blood to conserve heat and maintain normal functioning of the vital organs. The reflex was first observed in aquatic mammals, such as whales, porpoises, and seals, which are able to remain submerged for a long time.

Victims who have been submerged in water colder than 70°F may appear to be clinically dead and may have the following signs:

- Decreased pulse rate. The pulse may be undetectable in many victims.
- No detectable breathing.
- Bluish skin that is cold to the touch.
- Muscle rigidity (stiffness).

You must locate and remove victims who have been submerged in cold water as quickly as possible. There is a potential for survival for some of these victims, even if they have been submerged for an extended period. Some factors that increase the chance of survival include—

- Facial immersion—The mammalian diving reflex may occur when the human body, especially the face, is suddenly immersed in cold water.
- Victim's age—The mammalian diving reflex is believed to occur more often in younger victims.
- Water temperature—Colder water may cause a stronger reflex, which would mean more protection for the victim.
- Laryngospasm—Water taken in by the victim may go to the stomach rather than the lungs because a spasm of the larynx could cause the airway to close.

The mammalian diving reflex alone will not guarantee anyone's survival. Survival depends on the several factors listed previously. It also depends on how well you do your job. The quicker you can recover a submerged victim, the greater the victim's chances are. Once the victim has been removed from the water, appropriate resuscitation techniques should begin immediately. First aid procedures for hypothermia should be started as soon as possible. Victims also must receive medical care. As the core temperature of the victim approaches normal, the following vital signs may become more apparent:

- The return of normal skin color
- A contracting of the pupils of the eyes
- An increase in the rate and depth of breathing
- The return of a steady pulse
- An increase in the rate and strength of the pulse

An in-service training program should concentrate on the procedures for cold-water rescues at appropriate facilities. You should not attempt swimming rescues in cold water without assistance. Since you are subject to the same effects of cold as the victim, rescues and recoveries should be performed without your entering the water, whenever possible. The victim may not be able to hang on to an object such as a ring buoy or safety line. Therefore, if it is necessary for you to enter the water, you **must** take a piece of rescue equipment, such as a rescue tube. You would be wise to wear a PFD. A towline should be attached to the rescue equipment you use. You and the victim then can be towed to safety.

Training in the use of rescue boats should include how to handle the victim during the following procedures:

- Getting the victim into the boat
- Positioning the victim for rescue breathing and CPR
- Providing warmth during the trip back to shore
- Handling the boat in choppy water
- Removing the victim from the boat and transporting him or her to a facility for further treatment

At open-water facilities, the presence of thermoclines in the water could pose a hazard to users and lifeguards. A thermocline exists when there is a sharp change in temperature from one layer of water to another. Surface water may be warm and comfortable, while water at a depth of several feet could be much colder. An unknowing swimmer could dive down to this depth and experience the same symptoms as described previously for sudden immersion. A thermocline also could present hazards to lifeguards attempting to rescue a submerged victim. Changes in temperature could reduce the lifeguard's swimming and breath-holding capacities severely. Water temperatures should be taken at varying depths and recorded at least three times daily. This information could help you prepare for a swimming rescue or set up a search and recovery operation.

Heat Emergencies

Heat emergencies often occur when swimmers play too long or too hard or stay too long in the sun. People do not always realize how the sun can affect them.

Because sunlight reflects off shiny surfaces, such as bodies of water, being around water can increase exposure. Sunburn can occur on overcast days as well as on sunny days. When swimmers are in the sun, it is important that they wear a water-resistant sunscreen, which blocks some sun rays, or a sunblock, which provides maximum protection.

Everyone should seek protection from the sun and extreme heat and replace fluids by drinking water, sports drinks, or fruit juices.

People's eyes also should be protected from overexposure to the glare of sun, sand, and water either by a shade or by sunglasses. Hats also provide protection from the sun.

Heat Stroke

Victims of heat stroke may exhibit symptoms such as—

- Hot, red skin.
- Very high body temperature.
- Unconsciousness.

You should treat heat stroke as a life-threatening emergency. If you suspect that someone is suffering from heat stroke, you should—

- Call the EMS system.
- Get the victim into the coolest place available.
- Cool the victim by immersion in a cool bath or by wrapping the victim in wet sheets and fanning him or her.
- Care for shock by laying the victim down and elevating his or her feet.
- Give the victim nothing by mouth.

Heat Exhaustion

Victims of heat exhaustion may exhibit symptoms such as—

- Cool, pale, moist skin.
- Rapid, weak pulse.
- Weakness, dizziness.
- Nausea, vomiting.

You should treat heat exhaustion as an emergency. If you suspect that someone is suffering from heat exhaustion, you should—

- Call the EMS system.
- Get the victim into the coolest place available.
- Care for shock by laying the victim down and elevating his or her feet.
- Cool the victim by applying wet sheets or towels to the body and by fanning.
- Give half a glass of water to drink every 15 minutes for an hour if the victim is fully conscious and can tolerate it.

Heat Cramps

Victims of heat cramps may complain of muscular pains and spasms, usually in the legs or abdomen.

If someone is suffering from heat cramps, you should—

- Get the victim into the coolest place available.
- Give half a glass of water to drink every 15 minutes for an hour.

14 Weather and Environmental Conditions

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220 Environmental Conditions

Weather and environmental conditions in outdoor aquatic facilities such as lakes, rivers, swimming pools, and water parks relate to the safety of swimmers. These conditions vary greatly in different parts of the United States. This chapter deals with the basic information lifeguards need to evaluate certain weather and environmental conditions in order to make decisions regarding the safety of facility users.

However, it does not cover all types of weather and environmental conditions that can affect the safe operation of an aquatic facility. The information is presented as a guide and as an incentive to lifeguards, owners, and operators of aquatic facilities to seek out and develop local resources that can provide the specific information and training needed.

Weather and Environmental Agencies

A lifeguard's knowledge of weather and environmental conditions may be limited to knowing which agencies can supply the information needed to determine when aquatic activities are safe. Many state and local weather bureaus provide 24-hour telephone service for weather reports. Include their telephone numbers on the list of emergency telephone numbers at all aquatic facilities. Local weather conditions may change quickly and drastically. If you call the weather bureau two or three times daily, you can often prevent users from getting caught in unexpected storms.

Local radio stations and some TV stations broadcast weather reports throughout the day. In remote areas, additional weather information can be received from CB radios and scanners.

Weather Signs

Certain cloud formations are associated with changes in the weather. By becoming familiar with these formations, you can often know when the weather is likely to change. Following are some examples of cloud formations and the weather that usually goes along with them:

- Clouds that are high and hazy usually form a halo around the sun or moon. These clouds indicate that a storm may arrive within hours ***(Fig. 227).***
- Large clouds with cauliflower-like tops indicate an imminent thunderstorm. When they become active, they will look dark and heavy from below ***(Fig. 228).***
- Rolling, dark clouds indicate that bad weather can arrive within minutes ***(Fig. 229).***
- Fleecy white clouds indicate that good weather is ahead ***(Fig. 230).***

Once a storm or other bad weather is predicted, you should be on the alert for further signs, such as thunder and lightning. Take precautionary measures if lightning is observed. Estimating the distance to a storm is relatively easy. When lightning is seen, begin counting seconds. Continue to count until you hear the thunder. Light travels approximately 186,000 miles (300,000 kilometers) per second. Sound travels about 1,100 feet (330 meters) per second. Divide the number of seconds between the lightning and the thunder by 5 to estimate the distance to the storm in miles. Divide the number of seconds by 3 to obtain the distance in kilometers. For example—

1. Lightning is seen.
2. Begin counting—one thousand one, one thousand two, one thousand three, and so on.
3. Thunder is heard.
4. Stop counting. Six seconds have been counted.
5. Divide by 5 to determine the distance in miles. The storm is approximately 1.2 miles away.
6. Divide by 3 to find the distance in kilometers. The storm is approximately 2 kilometers away.

There are no guidelines for determining exactly when the water should be cleared of swimmers because of an impending storm. Since sound travels more slowly than light, a safe practice is to clear all persons from the water at the first sound of thunder. Establish guidelines for responding to lightning and thunder and put them in writing at each facility, since the frequency and duration of storms and the speed at which they travel vary in different locations. Advice from the local weather bureau is helpful in establishing policies relating to weather.

Figure 227
Hazy clouds

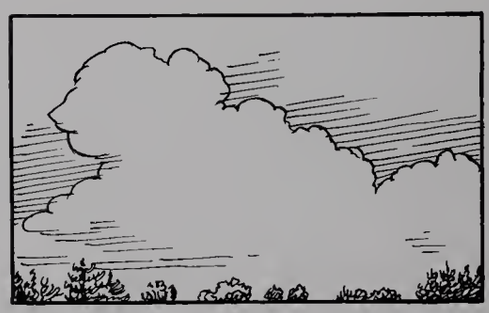

Figure 228
Clouds with cauliflower-like tops

Figure 229
Rolling, dark clouds

Figure 230
Fleecy white clouds

Clearing the Water of Swimmers

Specifically outline procedures for clearing the water of swimmers because of an impending storm. Once the manager or the head lifeguard has made the decision to clear the water, give all lifeguards an appropriate signal. This may be a long blast on a whistle or some other prearranged signal. Warn swimmers about the storm and direct them to shelter. Users should not congregate under umbrellas, trees, or other tall objects that attract lightning. Some suggestions for further protection are—

- Get inside a large building.
- Stay away from metal pipes, metal railings, wire fences, or other metal objects that may carry lightning. These include bicycles, motorcycles, and golf carts.
- Avoid using the telephone, except in an emergency.
- Do not stay in structures in open areas, such as picnic shelters.
- Stay away from heights, beaches, and fields.
- Get down from lifeguard chairs as soon as possible.
- Do not use the showers.

After all the users are supposed to be out of the water, check the swimming area for possible stragglers, secure the area, and then report to the office or the guard room for further instructions. Assistance may be needed to maintain order and discipline in locker rooms or other safe areas where users have congregated. In camp situations, tell campers to report to a central location or to their counselors, depending on the procedures of the facility. It may not be necessary to clear the water in a totally enclosed indoor swimming pool during a thunderstorm.

A guideline for determining when to allow users to return to the water is to wait for 15 minutes after the last visible sign or sound of the storm. However, make continual observations, and monitor weather forecasts on the radio.

Weather Hazards

Heavy Rain and Hail

Heavy rain and hail can be dangerous at aquatic facilities. If heavy rain or hail occurs, immediately clear users from the water and direct them to take shelter. Follow the same precautions as for thunder and lightning.

Heavy rains can cause changes in the clarity and depth of the water and present danger to swimmers.

Tornadoes

You should monitor weather forecasts in areas that are prone to tornadoes. A "tornado watch" indicates that tornadoes and thunderstorms are possible. A "tornado warning" means that a tornado has been sighted and that people should take shelter immediately. If a tornado is expected, you and the facility users should—

- Stay away from all windows, doors, and outside walls.
- Go to the basement of a building or to the interior parts at the lowest level. Go to a designated shelter if time permits.
- If there is no shelter nearby, lie flat in the nearest ditch, culvert, or ravine. Cover your head with your hands.

High Wind

High wind can cause hazardous conditions such as rip currents and undertows at outdoor aquatic facilities. Wind may cause wave actions that reduce visibility and influence currents. Wind also may create potential hypothermia conditions on cool days, especially for small children and elderly people.

You must be alert to high winds and take whatever steps are necessary to protect the users. At waterfronts, the wind may also affect the stationing of rescue boats. Establish procedures to be followed for windy days.

You should also protect yourself from the effect of wind.

Fog

Fog can create problems in open-water areas. Fog can occur at any time of the day or night as a result of certain weather conditions, such as the approach of a cold front. If the fog limits visibility, close the facility or keep everyone out of the water.

Environmental Conditions

Certain environmental conditions, such as weeds, rocks, tree stumps, or erosion, can be hazardous to users. Before opening the facility to the public, remove the hazards if possible, or mark them clearly to warn users. These hazards may be either in the water or on land.

Report immediately to the local board of health or other environmental regulation agency any changes in water conditions, such as discoloration, excessive turbidity, or dead fish or birds. Clear the facility of users if there is any possibility that conditions are unsafe.

At some facilities, currents cause changes in shoreline and bottom conditions. The water depth should be checked daily in certain areas. Also, remove any debris or obstacles that may have been brought into the swimming area.

Be aware of beds of underwater weeds in or near the swimming area. If possible, remove these beds before the facility opens for the season. If it is necessary to enter one of these beds to assist a distressed or drowning victim, remember to move slowly and carefully. This will help to prevent your arms and legs from getting entangled in the weeds. If the victim is conscious, attempt to calm the person. Once calmed, the victim can be assisted slowly out of the weed bed.

15 Health, Sanitation, and Operational Safety

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The entire staff of an aquatic facility is responsible for the health and safety of the users. The management of the facility is obliged to provide as safe a facility and as well trained a staff as possible. The lifeguards are obliged to ensure the safety of the users by supervising activities in the facility and, when possible, preventing hazardous situations. Other staff members, such as locker room attendants and maintenance personnel, are obliged to provide a clean and sanitary facility. However, not all aquatic facilities have a staff large enough to separate these duties. Frequently, the lifeguards perform most of the health and sanitation duties. Each facility varies in the amount and type of duties required of the lifeguards.

This chapter deals with the most common health, sanitation, and operational safety duties performed by lifeguards. It points out some of the differences between the duties of lifeguards at swimming pools and those at waterfronts. It is not intended to replace a pool operator's course or to teach an in-depth environmental control program. Organizations such as the National Swimming Pool Foundation; the YMCA of the U.S.A.; the Aquatic Council of the American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD); pool chemical companies; and departments of health conduct training courses in pool operation. Many colleges and universities also offer this type of training.

The degree of healthfulness and sanitation of an aquatic facility is determined primarily by the design of the facility and its physical plant. Other factors include the users' personal hygiene practices, the amount of attention the staff gives to the safety and cleanliness of the facility, and the quality of the water in the swimming area. Lifeguards influence these factors favorably in the following ways:

- By requiring users to take a shower before entering the pool. Users who have open sores or skin diseases may not use the facility.
- By conducting daily inspections and maintenance for the entire facility. Equipment and all areas of the facility are kept clean and free of hazards. Hazardous items are removed or identified.
- By controlling the clarity and sanitary characteristics of the water in swimming pools. The filtration and disinfection systems are maintained in good working order and operated by personnel trained in the proper use of this equipment. The water in waterfront facilities is monitored by using systems established by the board of health or by other state regulatory agencies.

The principles of health and sanitation are similar for most aquatic facilities. Each facility needs a detailed operations manual for its staff members. The manual should include, at a minimum, the following information about the health and sanitation of the facility:

- A list of items to be inspected on a daily or weekly basis, the reasons for inspecting each item, and the procedures to be followed for maintenance or repairs

- The areas of the facility that need to be cleaned on a daily or weekly basis and the cleaning procedures to be followed
- The procedures to be followed for testing and maintaining the quality of the water
- Samples of all records and reports lifeguards use during the operation of the facility, and how they should be processed and who gets copies

Safety Inspections and Maintenance

Daily inspections of all of the equipment in the facility, recreational as well as safety equipment, must take place. Any piece of equipment found to be unsatisfactory needs to be removed or restricted for use until it can be repaired or replaced. The management should be notified in writing about the condition of the equipment. All areas open to facility users must be inspected, including locker rooms, showers, toilets, and beach and deck areas. These areas are to be inspected before any users are allowed into the facility.

The following list includes some of the common areas that need to be inspected at aquatic facilities and the hazards or problems that may be found in each. The hazards or problems can be handled by the lifeguards or other staff members, such as locker room attendants or maintenance personnel:

- **Locker rooms and showers:**
  - Standing pools of water and slippery surfaces
  - Leaky faucets, shower heads, and toilets
  - Broken chairs and benches; broken or missing clothing hooks
  - Stopped-up floor drains
  - Broken or leaking pipes and spigots
  - Temperature of water too hot or too cold in showers
  - Broken lights, hand dryers, electrical fixtures
- **Decks, docks, and entrance areas:**
  - Slippery surfaces
  - Broken or loose concrete
  - Broken or loose boards or decking
  - Exposed nails; broken tile
- **Ladders:**
  - Loose or broken steps
  - Splinters
  - Sharp edges; exposed nails or bolts

- **Diving boards or towers:**
  - Loose or broken steps
  - Loose or broken frame and railings
  - Splinters
  - Sharp edges; exposed nails
  - Diving boards in poor condition
  - Slippery diving board surfaces
- **Lifeguard stands:**
  - Loose or broken steps; broken seat
  - Loose or broken frame
  - Sharp edges, exposed nails or bolts
  - Broken brackets that hold rescue equipment or umbrella
- **Beach area:**
  - Glass or sharp objects
  - Holes
  - Many rocks
- **Floats (docks and rafts):**
  - Exposed nails
  - Broken or splintered boards
  - Unstable platform
- **First aid rooms:**
  - Unclean, messy
  - Insufficient supplies
  - Damaged or old supplies

The first aid station should be checked daily for cleanliness and to make sure it has the necessary items including—

- Desk and chairs.
- Locking cabinets for storing supplies.
- Bulletin board.
- Pens, pencils, and paper.
- Incident report forms.
- Clock.
- Counter-top work area.
- Hot and cold running water.
- Sink.
- Additional sink or basin at lower level for treating knee and foot injuries.
- Liquid soap.
- Refrigerator or freezer (for ice).
- Cot, blankets, and pillow.
- Flashlight (extra batteries kept in refrigerator).
- Plastic bags of various sizes.
- Paper towels and paper cups.
- Trash container.
- Telephone, CB radio, or other communications system.
- Emergency telephone numbers, procedures, and script.

- Portable first aid kit containing—
  - Adhesive compresses of various sizes.
  - Adhesive tape.
  - Eye dressing pads (4" x 4" and 3" x 3").
  - Gauze pads (4" x 4" and 3" x 3").
  - Roller gauze (2", 3", and 4" widths).
  - Scissors and tweezers.
  - Triangular bandages.
  - Cold packs.
- American Red Cross Community CPR and Professional Rescuer CPR workbooks.
- American Red Cross Standard First Aid workbook.
- Resuscitator and oxygen. (Requires specialized training.)
- Cervical collars of various sizes.
- Litter.
- Splints (14" and 36") with ties.
- Long backboards with straps and material for immobilizing the head and neck.
- Towels (for backboard).

Important Areas to Check

All emergency equipment, such as mechanical resuscitators, must be kept in good working order. Units that contain electrical connections should be kept locked. Disinfection equipment, such as chlorine gas, should be checked periodically each day to ensure its safe operation. Maintenance equipment should be checked to make sure it is in good working condition before being used. Oxygen bottles should be checked and filled if necessary.

The bottom and sides of the swimming facility are another area of concern for lifeguards. In swimming pools, because of the clarity of the water, lifeguards usually can inspect by walking around the pool and looking for any hazards, such as missing or loosened grates over the drains and underwater lights that have worked loose or have broken glass. "Bathtub ring" is another maintenance problem caused by a buildup of body oils and suntan oil on the walls at the surface of the pool. It can be removed by scrubbing with a brush and using an appropriate cleaning solution.

At waterfront facilities, the lifeguards will have to check the bottom by carefully walking through the shallow water and by swimming through the deeper areas using a mask, fins, and a snorkel. In facilities that are part of a river system or are influenced by currents, debris may come into the swimming area. These areas should be checked daily, especially after a storm or a sudden change in the weather.

Rescue boats should be inspected daily to see that they are in good condition and ready for immediate use, and that all necessary equipment is on board and in good condition.

Maintenance

Following is a daily maintenance routine that may be adapted to different aquatic facilities:

- **Before opening:**
  - Check the bottom of the swimming area for hazardous objects and check sand-bottom swimming areas for buildup of ridges that may cause diving injuries.
  - Sweep out and hose down locker rooms, bathhouses, showers, toilets, and entrance ways. These areas should be scrubbed daily.
  - Skim the surface of the water and clean out overflow troughs in swimming pools.
  - Vacuum the pool.
  - Rake the beach at waterfronts and inspect the area for other debris.
  - Empty all trash containers and wash them out once a week.
  - Clean out the office, guard room, and first aid room. Wash treatment surfaces in the first aid room with a disinfectant.
  - Check lifelines to see if they are properly located, stretched tightly enough to support an adult with his or her head above water, and anchored properly.
  - Hose down the deck or dock area. At waterfronts, this can be done with buckets of water. Wash in a direction away from the swimming area, if possible, to avoid splashing or washing any debris from the deck into the swimming area.
- **During hours of operation (on a periodic basis):**
  - Remove all trash and replenish any needed supplies.
  - Inspect the pool deck or beach area.
  - Inspect the area for sunbathing.
  - Inspect the locker rooms and floors.
  - Inspect the showers and toilets.
  - Disinfect bench surfaces.
- **At closing:**
  - Check the bottom of the swimming area for objects or bodies.
  - Put trash in cans and station them where they can be picked up.
  - Hose down the locker room and shut off the showers and faucets.
  - Hose down the decks.
  - Put all found articles in the lost-and-found lockers.
  - Return all equipment to the proper area.
  - Turn off all unnecessary lights. Turn on any security lights.
  - Check all windows, doors, and gates to be sure they are locked. (This should be done in the presence of another guard or staff member who is a witness to the security procedure.)
  - Be sure all small boats have been returned.

Swimming Pool Filtration

Persons responsible for the proper operation of the filtration and disinfection equipment at swimming pools must have some knowledge of water chemistry, water filtration, and water testing. This knowledge should include the types of disinfectants used, the methods of testing and controlling the water's chemical balance and turbidity, the physical and biological properties of water, and the bacteriological standards established for the water in the facility by health code.

The information about water chemistry that follows is not intended to educate lifeguards thoroughly. It is presented only as a foundation and as a stimulus to individuals to further their education on this subject. Lifeguards are encouraged to purchase and read one of the texts that are available on pool operation such as the National Swimming Pool Foundation text *Pool-Spa Operations Handbook* or the *YMCA Pool Operations Manual.* Owners and managers of swimming pools should encourage lifeguards who are given responsibility for pool operation to attend pool operations clinics. Local ordinances may require the lifeguards to pass an examination on this subject. Periodic recertification may also be required. Keep at the facility a file containing textbooks or manufacturers' directions relating to the pool operation and water sanitation, and also include a list of possible problems relating to operation and sanitation as well as some solutions to these problems.

Water Circulation

Swimming pools usually vary in the arrangement of the components that make up the circulation system. The lifeguard is responsible for identifying and locating each component in the circulation system at the facility where he or she is working. The following components may be found in most modern facilities. Not all of those listed will be found at every facility:

- Drains, on pool bottom—Take water into the system.
- Overflow troughs and skimmers—Take water into the system and remove oils and waste floating on the water surface.
- Balance tank (surge tank)—Maintains the water level in a pool when water is displaced by swimmers.
- Strainers for hair and lint—Remove hair, lint, and other materials from the system.
- Pump—Forces water through the system.
- Tanks for chemicals—Hold chemicals to be put into the system.
- Valve—Controls the flow of water and chemicals.
- Gauges—Indicate the water pressure of filters in pounds per square inch.
- Flow meter—Indicates the rate of water flow in gallons per minute.

- Filters (sand and gravel, diatomaceous earth or cartridge)—Remove particulate material from the water.
- Soda ash or caustic soda feeders—Put chemicals into the system to raise the pH level.
- Water heater—Heats water before it returns to the pool.
- Sight glass—Allows visual inspection of water clarity while backwashing a sand filter.
- Pool inlets—Return water to the pool.
- Slurry tank—Mixes and feeds diatomaceous earth into filters.
- Alum feeder—Puts alum into sand and gravel filters.

Depending on the type of filter, additional components may be found that are unique to the system.

Swimming Pool Chemistry

Balanced water is one of the most important factors in the life expectancy of a swimming pool. Various chemical tests performed on the pool water during daily operations will identify the need for the pool operator to add chemicals or take other courses of action.

The single most significant aspect of balanced water is the pH factor. The pH indicates how basic or acidic the pool water is on a scale of 0 to 14. The number 7.0 represents neutral (neither basic nor acidic). Water ranging from 0 to 6.9 is acidic, and water ranging from 7.1 to 14.0 is basic ***(Fig. 231).***

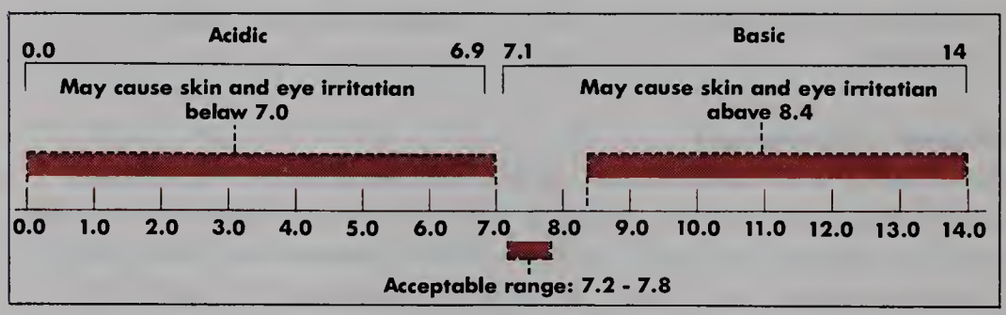
Acidic
0.0
6.9
7.1
Basic
14
May cause skin and eye irritatian belaw 7.0
May cause skin and eye irritatian abave 8.4
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0
Acceptable range: 7.2 - 7.8

Figure 231
pH range from acidic to basic

A pH level below 7.0 can cause corrosion of the plumbing, filter tanks, and heater, as well as cause discomfort to the eyes, skin, and mucous membranes. A pH of 7.8 or above reduces the effectiveness of chemical disinfectants (chlorine, iodine), allows for calcification in sand filters and pool heaters, permits the growth of algae, and can also cause irritation to the eyes. Attention to the proper pH and other chemical levels will provide for safer operation, more comfortable swimming, and longer pool life, all at much lower operating and maintenance costs.

Different types of filtration equipment, unique water conditions, and chemical combinations determine chemical levels in a swimming pool. Swimming pool operators should check with the health department or other regulatory agencies for required standards. The following levels are not specific and therefore may vary for different states and localities:

- **Chlorine**—A minimum free chlorine residual of 1.0 ppm (parts per million) maintains good clarity of water and causes less eye irritation.
- **pH**—A range of 7.2 to 7.8 maintains water that is in an acceptable pH range.
- **Alkalinity**—A range of 80 to 100 ppm prevents the pH level from fluctuating widely with various swimmer loads.
- **Calcium hardness**—A range of 200 to 400 ppm is favorable. A water hardness that is too low may cause the water to become corrosive, and this condition can damage pipes, concrete, plaster, and heater coils.

Disinfection

Some means of disinfecting pool water is required by all states for the purpose of killing bacteria. Water serves as a potential for transporting disease organisms. Disinfection is usually accomplished by using one of the halogens: chlorine or bromine. Other disinfecting agents are increasing in popularity (for example, ozone, silver, and copper) and are becoming cost-effective. The halogens remain the most popular, with chlorine the most commonly used. Each of the following disinfectants has its unique characteristics:

- **Chlorine agents**—All chlorine products disinfect the water by killing bacteria and oxidizing solid matter in the water and controlling the growth of algae.
- **Gas chlorine**—Gas chlorine requires the use of soda ash or caustic soda and bicarbonate of soda for balancing water and pH. Chlorine gas is highly toxic and must be used with care. Personnel must use self-contained breathing apparatus when working around it or when changing gas cylinders.
- **Calcium hypochlorite**—Calcium hypochlorite, which raises pH levels, requires an acid to maintain the proper pH range, along with bicarbonate of soda to maintain proper balance. All types are flammable and explosive when they come in contact with organic materials such as paper, oil, and gasoline.
- **Sodium hypochlorite**—Sodium hypochlorite requires an acid to maintain the proper pH range, along with bicarbonate of soda to maintain the proper balance.
- **Lithium hypochlorite**—Lithium hypochlorite is a fast-dissolving, newer chlorine compound totally soluble in water.

- **Stabilized chlorines**—Chlorinated isocyanurate is a soluble chlorine agent that is used in outdoor pools to reduce the loss of chlorine due to sunlight. Tri-chlor requires soda ash or caustic soda and bicarbonate of soda to balance water and pH. Di-chlor is nearly neutral in pH.
- **Bromine** (organic)—Bromine requires soda ash and bicarbonate of soda to maintain balance. Bromine requires chlorine as an algaecide.

Filtration

Sparkling clean pool water results when the water is chemically balanced and effectively filtered. Filtration of the pool water (physical cleaning) refers to the removal of particles of dirt and the organic and inorganic materials that are suspended in it.

During the filtration process, water is taken from the pool, pumped through filters, treated with chemicals, and returned to the pool ***(Fig. 232).*** There are three common filter media used today:

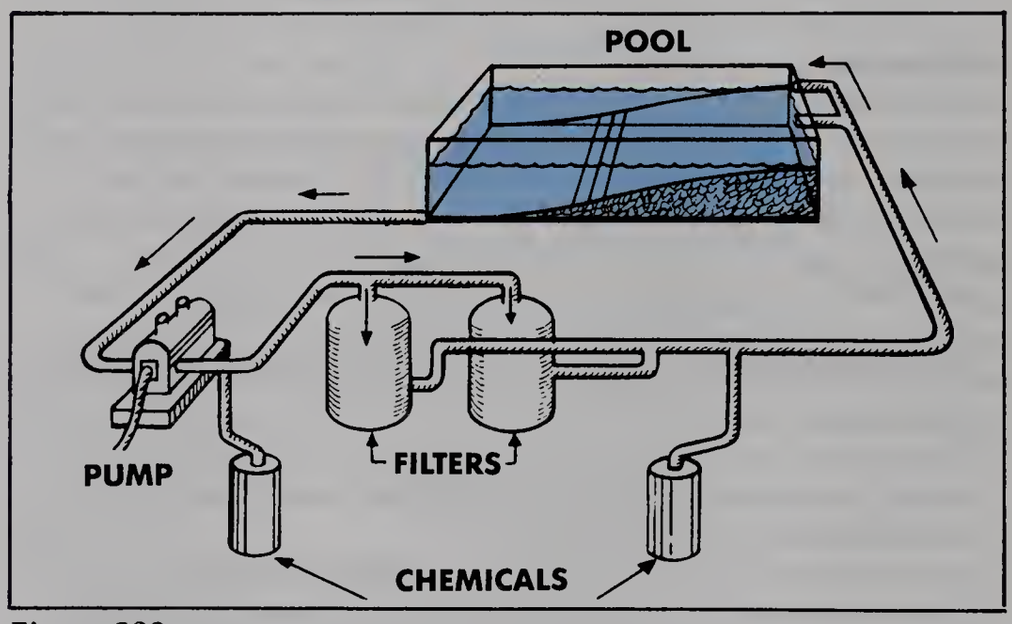

Figure 232
Filtration system

1. **Sand and gravel filters**—Sand and gravel is a medium that does not usually have to be replaced. Rapid-sand pressure, high-rate pressure, and vacuum sand are the three types of sand filters that can be found in public pools. Both pressure types operate on the same principle: utilizing a pump motor to force the water through the filter. Water enters the top of the filter through a baffle plate and then passes through two or three layers of sand and of gravel to a manifold or collection pipe at the bottom of the filter tank. The water exits at that point and is returned to the pool ***(Fig. 233).*** Filter aids or flocculents such as alum are sometimes used to complement filtering. High-rate pressure filters are smaller than rapid-sand pressure filters, and fewer are required because water is forced through them at much faster rates than through rapid-sand pressure filters.

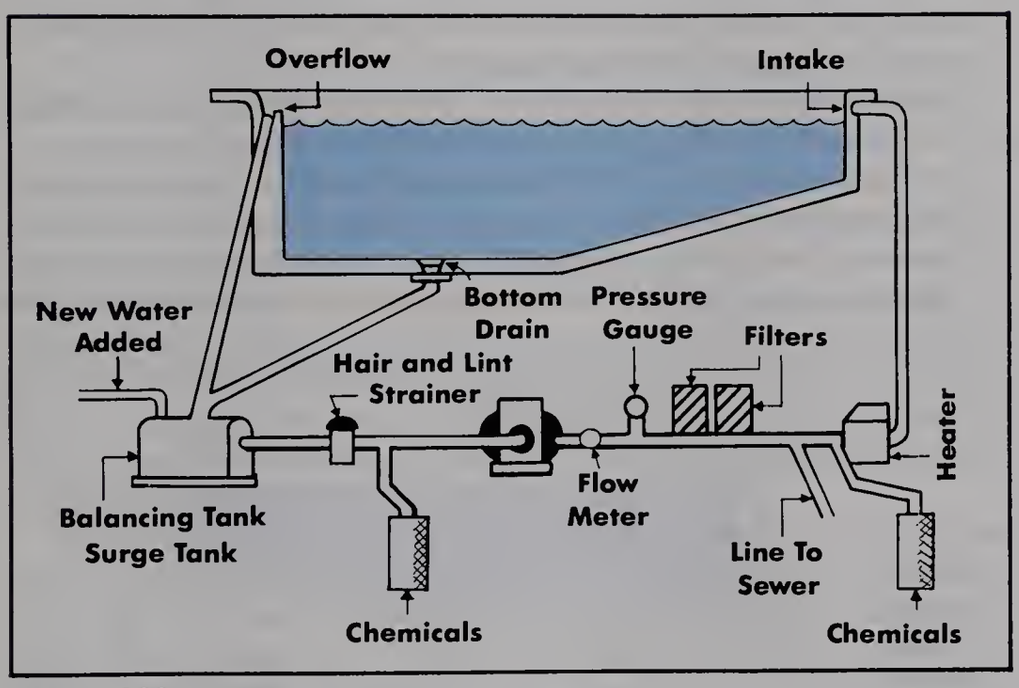

Figure 233
Sand and gravel filter

The term **backwashing** means reversing the flow of water through the filter. This carries away to the sewer all of the material accumulated on the filter surface. Backwashing on a regular basis provides good water clarity and extends the life of the pump and motor. Follow the manufacturer's instructions for the best results when backwashing. The backwashing procedure should be a routine operation. It is highly recommended that a step-by-step procedure be posted in the filter room for easy reference. Never trust the procedure to memory.

2. **Diatomaceous earth filters**—Diatomaceous earth (DE) is the fossilized remains of marine plants called diatoms. DE filters are the most efficient yet developed for pools ***(Fig. 234).*** The filter medium is a temporary material discarded after use. Newer DE systems are now using the same medium for longer filter runs (regenerative cycle DE filters). Vacuum and pressure systems are the two basic types of DE filter systems now being used.

   DE filter elements are composed of a plastic or metal framework covered with a woven synthetic fabric. A coating of DE is applied to the filter elements. Water passes through the DE, on through the element, into a manifold pipe, and returns to the pool. The filtered particles remain on the surface of the DE until the channels fill up and require cleaning. While DE filtration appears expensive because the DE medium must be replaced, very little pool water is wasted in the cleaning process. This conserves valuable chemicals and the heat that is normally lost in cleaning a sand filtration system.

   Depending on the type of filter, there are several ways to clean DE filters. The techniques include using compressed air, agitation, or spray washing. Follow the manufacturer's instructions for the best results. Never trust the procedure to memory. The operator should wear a mask that covers the nose and mouth when handling DE. This will help to prevent inhaling the DE dust.

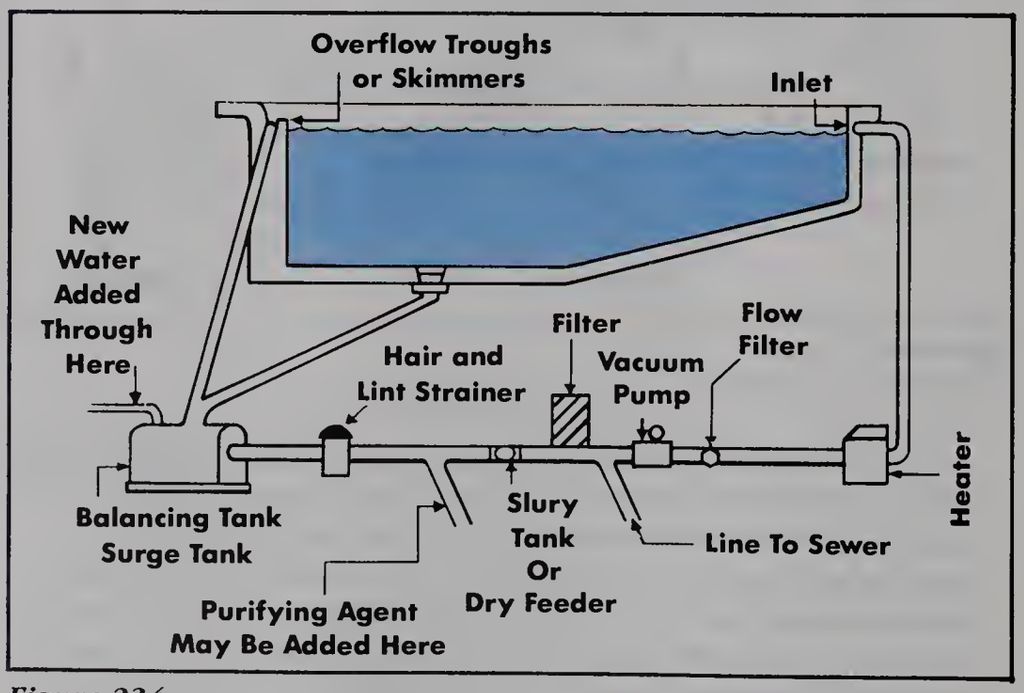

Figure 234
Diatomaceous earth filter

3. **Cartridge filters**—Cartridge filters are becoming available for various size pools. These filters, which come in a variety of sizes, have a pleated cylindrical core of synthetic fabrics attached. Ease and speed of cleaning and technological advances have improved the availability and popularity of cartridge filters.

Water Testing

The chemical analysis of pool water is a daily requirement. All states require the daily monitoring of the disinfectant and the pH level along with written reports of these readings. Some facilities are required to submit these reports to the state or county health office having jurisdiction for swimming pools.

Testing for the various levels of chemicals in swimming pool water is usually accomplished through the use of some type of color slide comparator or titration. Test kits and reagents specific to each test must be used for proper results.

Test kit reagents also are specific to the company making the test kit. Reagents from one company may not produce the colors that correspond with the color comparator of a different company. Also, reagents may have a shelf life of less than one year if not properly stored. Reagents should not be exposed to extremes of heat or cold or to direct sunlight for any length of time.

The testing process provides important information about water quality. It should be performed accurately to get the best results.

It is essential to conduct the test with clean hands and to maintain clean test components. The method of taking a representative sample from the pool is also important. Samples should be taken between the water inlets, not in front of them. When the sample is taken, keep the container capped or held upside down until it is approximately one foot below the surface, where it is then filled. Follow the manufacturer's directions when the water is tested. Use fresh reagents in the proper amount in order to realize accurate measurements. Flush water samples into a waste disposal system instead of pouring them back into the pool.

Test pool water hourly for chlorine residual and for pH while the pool is in operation. Conduct other tests weekly, such as those for total alkalinity, calcium hardness, total dissolved solids, and bacteria. Record all water tests on a daily pool report each time they are taken, and include the name of the person who performed the tests. These reports should be retained for two or more years to provide the facility management with valuable reference information.

Ideal Swimming Pool Conditions

The swimming pool is a multipurpose facility serving the swimmers through recreation, competition, education, and safety programs. All participants in these activities expect a pool to be attractive, comfortable, clean, and healthful. The term "ideal conditions" has a variety of meanings, depending on the nature of the program or activity and the age of the participants. Toddlers, young children, disabled persons, and adults enrolled in beginner swimmer courses appreciate having a water temperature of about 82°F to 86°F. The minimum desirable water temperature for water-experience programs for children under 3 is 82°F; 86°F is preferred. Competitive swimmers and coaches prefer to have the water temperature somewhat cooler (78°F to 82°F).

Some chemical, bacteriological, and maintenance conditions for pools are specified by state and local laws, yet many other conditions are not. The following recommendations serve as guidelines:

- **Bacteria**—No coliforms.
- **Water temperature**—82°F to 86°F.
- **Air temperature**—4°F higher than water temperature, especially in indoor pools.
- **Chemical levels**—Balanced to provide healthful environment.
- **Turbidity**—Sparkling water; bottom visible from anywhere on deck.
- **Water color**—Diamond blue.
- **Pool bottom**—Vacuumed and free of dirt and other materials, such as hair.
- **Decks**—Clean; free of stagnant water, dirt, and algae; not slippery.
- **Diving boards and starting blocks**—Surface clean; free of fungus; not slippery; in good condition, with adequate depth underneath. Starting blocks should be located at the deep end of the pool.

Water Problems

Turbidity or colored water (other than diamond blue) is usually the result of neglect or unusual chemical and mineral combinations. Two things are certain: (1) cloudy or colored water conditions do not usually occur within a few hours and (2) some water problems may take days to correct. The following water problems and their causes are common:

Problem	Causes
• **Turbid (cloudy) water**	• Low disinfectant residual • Tear in a DE filter cover • Filters that need cleaning • pH above 7.8
• **Algae**	• Low disinfectant residual • Using a disinfectant ineffective against algae • pH above 7.8 • Water too warm • Not brushing pool
• **Colored water**	• Chemicals not balanced • High copper or iron levels—green water • High iron content (rust)—red or reddish brown water • High manganese content—brown or black water
• **Eye irritation**	• pH below 7.0 • pH above 8.0 • High level of chloramines (chlorine and ammonia compound)
• **Chlorine odor**	• Low chlorine content • Chlorine and ammonia forming chloramines

Chemical Safety

Years of experience and training in water safety have alerted managers and staff to other dangers at a swimming pool in addition to those usually associated with being in or around water. There are many unseen dangers involving the various chemicals used for disinfection, balancing, testing, and cleaning. The following list contains some of the more dangerous chemicals and the problems they present:

Chemical	Problems
• **Chlorine gas**	• Leakage could necessitate evacuation upwind of pool and surrounding area. (Emergency plans should be developed for this situation.) • Inhaled fumes may cause serious or fatal injury. • Chlorine gas is heavier than air; stays at or near ground level.
• **Calcium hypochlorite and lithium hypochlorite**	• Chemical must always be mixed into water. • All types are explosive and flammable when contacted by organic substances, such as paper, oil products, detergents, and gasoline. (No smoking around these chemicals.) • Used improperly, can cause water to become cloudy. • Can be fatal if swallowed. • Can cause severe burns if they get into eyes. • Chlorine gas created while burning.
• **Sodium hypochlorite**	• Contact with skin may cause irritation. • Inhaled fumes can damage lung tissue. • Can cause severe burns if it gets into eyes.

• **Chlorinated cyanurates**	• Irritate eyes, mucous membranes (all types), and open cuts. • Flammable under certain conditions. (Prevent contact with organic materials. No smoking around these chemicals.) • Chlorine gas created while burning. • Chemical must always be mixed into water.
• **Bromine (organic)**	• Flammable and explosive. (Prevent contact with organic materials. No smoking around this chemical.) • Harmful if swallowed.
• **Test kit reagents (general)**	• Harmful to eyes if contacted. • Orthotolidine (reagent used for chlorine tests) is carcinogenic (cancer-causing). (Wash hands after using.) This chemical is prohibited in some states.

Use extreme caution when dealing with chemicals around a swimming pool. Chemicals should be added to water; water should never be added to chemicals. Keep storage areas locked and marked "off limits" to unauthorized personnel. Store all chemicals in a cool, dry place. Keep the area clean and well ventilated. Always keep heat, fire, lighted cigarettes, and matches away from the chemicals. Keep the chemicals in the original containers, and the containers closed when not in use. Make sure chemicals are stacked or stored so they will not come in contact with wet floors.

Personnel responsible for the operation of disinfection and filtration equipment must be properly trained in the operation of that equipment, in the maintenance procedures, and in the appropriate emergency procedures.

Keep a self-contained breathing apparatus near the room containing chlorine gas. Make sure all aquatic facility staff are trained in the proper use of this equipment. This training should include—

- Method of checking the air supply.
- Proper method for putting on the equipment.
- Testing to verify proper functioning of the equipment.
- Emergency procedures to take if the equipment does not function properly.
- Where to get the air supply recharged. Oxygen is **not** used in self-contained breathing apparatus.

Electrical Safety

Electrical shock is a very real hazard in the operation of swimming pools. The possibility of electrical fixtures and wires coming in contact with water exists with underwater lights, tape recorders, VCRs, record players, automatic-timing devices, pace clocks, pool vacuum cleaners, and many other appliances that have wires stretched across the pool decks. All underwater lights and poolside and locker room outlets should be protected by a ground-fault interrupter. This eliminates the danger of electrocution in the event of a cracked or leaking lens. State electrical codes are very strict about the positioning of electrical outlets and the use of electrical appliances around pools.

Keep locked all rooms or boxes containing electrical connections or equipment. Allow only authorized personnel in these areas. Whenever electric vacuum cleaners are being used, swimmers must not be allowed in the pool. Place one or more signs mounted on a stand in prominent or noticeable areas on the pool deck to prevent swimmers from using the pool while it is being vacuumed.

Spas

In the past 20 years, warm-water spas have become a very popular addition to aquatic, health-related, and recreational facilities. Spas, once found only in athletic training rooms, are now being included in the design of new public pools, health clubs, aquatic parks, hotel pools, and campgrounds. As a result, lifeguards now have responsibilities for the operation and safety of these small warm-water facilities and must be aware of the dangers inherent in their operation and use. Complete information on spa operation and safety is provided in a guide published by the Centers for Disease Control (CDC) entitled *Suggested Health and Safety Guidelines for Public Spas and Hot Tubs.*

Safety Concerns

Many spas in new aquatic facilities are located immediately next to a swimming pool. This design presents multiple problems for lifeguards, as they may have to observe two facilities simultaneously. Positioning the lifeguard to enable him or her to observe both the pool and spa is often a logistical problem. Since a spa is much smaller than a pool, lifeguards often give it minimal attention. While the spa obviously will never require a rescue that involves swimming any distance to an actively drowning victim, as might occur in a swimming pool, the small size should not lull the lifeguard into complacency. The spa should receive constant observation and supervision, especially when only one person is using it. Much has been learned about spa safety since spas first became popular, and lifeguards with spa responsibilities need to have this information.

Spa Injuries

The most frequent incidents around spas are falls, drownings, and electrocutions, many of which are related to the use of alcohol and drugs. Tripping and slipping on the edge and deck surfaces around a spa sometimes result in injury. Youngsters who see the spa as a small swimming pool may dive into it and injure themselves. Some deaths have been caused by electrocution from contact with a radio, television, or other electrical device situated close to the spa.

Drowning is an ever-present danger in a spa. Some drownings—active drownings—occur when the spa user submerges headfirst to the bottom where suction catches his or her hair in the bottom drain. Other drownings—passive drownings—occur when the spa user loses consciousness while in the spa. People using alcohol and drugs may lose consciousness while soaking in a spa and slip quietly below the surface of the water. People often use spas after exercise has elevated their blood pressure and body temperature, and immersion in spa water under these conditions may cause

unconsciousness because the body experiences hyperthermia (increased body core temperature). Hyperthermia can also result from soaking longer than 15 minutes or from exercising in the spa. People with certain medical conditions such as hypoglycemia, diabetes, epilepsy, extreme emotional stress, dieting for weight loss, heart conditions, and high blood pressure also can lose consciousness while in a spa.

Two groups of spa users should be of special concern to lifeguards and should be warned of possible danger before entering a spa. These groups are pregnant women and children under the age of 5. A pregnant woman should not enter a spa with water temperature any higher than 102°F and she must limit soaking to a maximum of 15 minutes. Soaking for longer periods or in water of higher temperature may result in damage to the fetus. Because small children's bodies are unable to adjust to high water temperatures, a facility may decide not to allow small children in a spa.

Lifeguards must also be alert to people who, after soaking in a spa, may leave the spa and immediately enter the swimming pool. The danger is that the contrast between the body's elevated temperature and that of the much cooler pool may result in unconsciousness and passive drowning. Persons who use the spa should be cautioned to wait at least 5 minutes before they swim in the pool. In addition, these swimmers should be carefully observed for several minutes after they have entered the pool.

Spa-Transmitted Diseases and Allergic Reactions

Warm water can be a breeding area for harmful diseases if proper disinfectant levels are not maintained. Coliform bacteria and Pseudomonas aeruginosa are a few of the many diseases that can be spread in contaminated and improperly disinfected water. P. aeruginosa is a skin rash commonly associated with spas that are poorly maintained and insufficiently treated with disinfectant chemicals.

Spa Operation Recommendations for Lifeguards

To understand spa operation, it may be helpful to compare spa use with the use of a typical swimming pool. A spa with 3,000 gallons of water (10 feet long, 10 feet wide, 4 feet deep) with 10 people soaking in it is comparable to a 270,000-gallon pool (75 feet long, 60 feet wide, 12 feet deep, and 4 feet shallow) with 200 swimmers in the water. Therefore, a high level of attention is necessary for a spa when one considers the potential health and safety problems with warm water and high-density use.

The following conditions should be maintained in a spa for a safe, healthful environment:

- Water temperature—101–104°F
- Filtration—1 turnover every 30 minutes
- Chlorine/bromine—3.0 –5.0 ppm
- Superchlorinate—Weekly to 10 ppm
- pH—7.4–7.6
- Total alkalinity—80–180 ppm
- Calcium hardness—200–400 ppm
- Total dissolved solids—Less than 1,500 ppm
- Bacteria testing—Weekly for coliforms and P. aeruginosa

One or more large-faced clocks should be placed near the spa clearly visible to all who use this facility. Safety signs are also essential for maintaining a low-risk environment. The following warnings should be visible on a sign at the entrance to the spa and on another sign in the spa area:

- Caution—
  - Soap shower is required before entering the spa.
  - Enter and exit the spa slowly and cautiously.
  - Anyone suffering from heart disease, diabetes, or high or low blood pressure should not use the spa.
  - Pregnant women are not permitted to use the spa without their physician's approval.
  - Children under 5 years old are not permitted to use the spa.*
  - Children over 5 must be accompanied by a parent.
  - Observe a reasonable time limit (10 minutes), then shower and cool down. Long exposures may result in nausea, dizziness, or fainting.
  - Anyone under the influence of alcohol, anticoagulants, antihistamines, vasoconstrictors, vasodilators, stimulants, hypnotics, narcotics, or tranquilizers is not permitted to use the spa.
  - Never use the spa alone.
  - Diving is not permitted.
  - Body lotion or oil is not permitted.
  - Street shoes may not be worn in the spa area.
  - Food or drink is not permitted in the spa or spa area.
  - Do not submerge headfirst to the bottom of the spa; hair may get caught in the drain.
  - Failure to follow these rules may result in serious or fatal injury.

*A facility may decide to exclude children under 5 because small children's bodies are unable to adjust to high water temperatures.

Waterfront Facilities

At all waterfront facilities, the swimming and diving areas must be operated and maintained in accordance with state and local laws and regulations. The owners, operators, and managers of these facilities are responsible for checking with the local regulating agencies, such as the public health department, to determine the specifics of the regulations.

Maintain specific rules covering such subjects as water quality, safety and rescue equipment, electrical safety, insect and rodent control, and plumbing. Each waterfront facility will differ in the responsibilities given to lifeguards. However, lifeguards must be aware of the health hazards inherent with waterfront facilities. Some of the most common health and sanitation problems faced by lifeguards at waterfront facilities are—

- **Water quality**—The biological, bacteriological, and radiological qualities of the water must be tested according to the times and standards of the regulating agency. Lifeguards must be properly trained to administer and evaluate these tests if they are responsible for this testing.

  In waterfront areas that are part of a river system, the water quality will be influenced by anything that may enter the river upstream from the site, such as sewage; liquid wastes; or erosion materials from a construction site, power station, laboratory, or industrial plant. Constantly check all waterfront areas for debris, such as rocks, logs, shells, seaweed, and swamp growth, that may be brought in by currents, tides, storms, or recreational boaters.
- **Temperature**—Lifeguards must check the temperature of the water and the air frequently. Since nothing can be done to control these temperatures, schedule aquatic activities, particularly classes, if possible, for the times of the day when the air temperature is warmest. Lifeguards should be trained in the prevention, recognition, and first aid care for victims of hypothermia. Lifeguards must realize that they also are susceptible to overexposure to heat and cold, and they should follow proper precautions, such as wearing the correct type and amount of clothing.
- **Aquatic life**—Check the area for leeches, snakes, and any other aquatic life that could be hazardous to swimmers.
- **Animals**—Inform the management of the facility immediately of any animals in the area. Animals should not be permitted at swimming, diving, or snack bar areas. Any animal bites must be immediately reported to the management and to the local board of health or other appropriate regulating agencies.

- **Electrical safety**—Many of the electrical situations at pools apply to waterfronts as well (see page 238). You need to check electrical outlets at waterfront facilities daily for damage that would allow water to enter the outlets. Report any electrical equipment that needs repair to the management. All damaged electrical equipment should be removed or disconnected from the electrical source until it is repaired. Keep locked rooms or areas that contain electrical equipment, such as motors or breaker boxes, and allow only authorized personnel to enter these areas. Grounding requirements for electrical equipment and circuits should be followed.

16 Waterfront Areas

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WATERFRONT RULES
NO GLASS CONTAINERS ON DOCKS
NO PETS ON DOCKS OR IN SWIM AREA
NO RUNNING-HORSEPLAY ON DOCKS
NO STROLLERS OR PLAY PENS ON DOCKS
NO FISHING FROM DOCKS
ONLY LIFEGUARD ON LIFEGUARD STANDS
SWIM IN DESIGNATED SWIMMING AREA ONLY

Recreational facilities with open-water, nonsurf beaches are used increasingly by the public. These facilities are found at private camps, inland lake areas, state parks, resorts, trailer parks, wilderness areas, and playgrounds. Individuals may use them on a short-term (daily) or long-term (seasonal) basis. They may be manmade lakes, natural spring-fed lakes, bays in ocean areas, or part of a river system. Each of these facilities has its own characteristics, such as water clarity, currents, or beach areas, that lifeguards must deal with while supervising the users.

When establishing operational procedures for a waterfront facility, you must take the following factors into consideration:

- **Natural features of the area**—Knowing the source of the water, such as a river or a natural spring, can help you determine approximate water temperatures.
- **Water characteristics**—If the waterfront is part of a river system, you must consider currents. Also, you must be aware of debris and any other hazards that currents may bring into the swimming areas. Some waterfronts are downstream from dams that regularly release water. Therefore, water depths at the facility could change.
- **Vantage points**—The best locations for lifeguard stations may change throughout the day because of variable wind and sun glare.
- **Types of activity to be conducted**—Classes, recreational swims, boating and canoeing, scuba diving, water skiing, and springboard diving are examples of waterfront activities. These activities must be coordinated in ways that use all available space and still provide proper supervision.
- **Communications**—Establish effective communication systems between facility staff, with other camp staff, and with emergency personnel before opening the waterfront. Have lifeguard chairs equipped with a communication system such as a telephone, bullhorn, or two-way radio. A telephone at a waterfront is essential.
- **Types and numbers of people who use the facility**—Establish a capacity limit for each area of the facility: nonswimmer, swimmer, and boating areas. Establish a system for testing swimming skill levels and/or for designating skill levels for admission to certain areas.
- **Times of peak activity**—Peak activity times need to be identified on the daily schedules and considered in the schedules of lifeguards and other staff members.
- **Availability of additional personnel**—Waterfront staff may need support personnel, such as camp counselors, as lookouts during recreational swims. Many of these personnel can be trained as instructor aides to assist with classes.

Almost all of the information in this book can be modified and applied to the safe operation of an open-water, nonsurf beach. The following section deals with specific conditions and areas that need additional attention from lifeguards at a waterfront facility.

General Characteristics of Waterfront Areas

Bottom

The bottom of a waterfront area should slope gently from the shallow-water area to the deeper-water area. There should be no holes or sudden drop-offs. Remove all underwater obstructions, such as tree stumps or rocks, from the swimming and diving areas. If they cannot be removed, they should be clearly marked in areas provided for boating.

Swimming Areas

Designate separate swimming areas for different levels of swimming ability, such as nonswimmer, beginner, and swimmer. Place buoyed lines or docks between these areas to help prevent users from straying into areas for better swimmers. Stretch buoyed lines tightly enough to support a person on the surface with his or head above water. Place depth markers on the surfaces of decks. Place signs saying "Danger—Shallow Water—No Diving" in areas where the water depth is less than 5 feet.

Small-Boat Area

Designate an area for small-boat activity that is separate from the swimming area. Small-boat areas should have separate lifeguards and lookouts. Small-boat areas are discussed later in this chapter.

Scuba Area

If scuba diving is allowed at a facility, restrict it to a clearly defined area and mark the area with a diver's flag ***(Fig. 235)***. Also mark the area with signs under the water, if possible, to prevent divers from straying into a boating area. No small boat should be allowed in the scuba area, except for a safety boat.

Figure 235
Diver's flag

Diving Areas

Restrict all diving from a board to areas with water at least 12 feet deep. Competitive diving organizations such as U.S. Diving and the National Collegiate Athletic Association recommend that the minimum depth of water be 12 feet under a 1-meter board and 13 feet under a 3-meter board. Define the boundaries of the area with lifelines. Because of the limited water visibility at most facilities, no diver should be allowed to dive until the preceding diver has surfaced and has moved out of the way. Further information on diving boards and towers is in Chapter 5, "Preventive Lifeguarding."

Beach Area

Rake the beach area daily to remove glass, rocks, sharp objects, or trash. Fill all holes immediately.

Docks and Rafts

Docks, piers, rafts, and other platforms should be anchored securely or attached to pilings to prevent shifting due to winds or currents. Have a daily inspection to look for rotting wood, protruding nails, and weak or frayed anchor cables or lines. **No one should be allowed to swim under docks, rafts, or platforms.** All rafts and platforms with diving boards must be strongly anchored and stable enough to prevent tilting when dives are executed. The diving platform should not be able to be moved by wind or waves.

Bathhouse

The bathhouse should be located near the waterfront. Have a daily inspection of the shower rooms, the restrooms, and the locker areas. Do not allow water to stand on any floors.

Lifeguard Stations

Place lifeguard **towers** in positions that permit clear and elevated views of the entire swimming area. Have a lookout in each tower at all times that the facility is in use. Lookouts are useful in directing lifeguards to trouble spots.

Locations of **chairs or stands** determine the lifeguard's area of responsibility. Station a piece of rescue equipment, such as a rescue tube, on each chair or stand. If there is a diving platform that is separate from the main diving area, make sure the lifeguard chair assigned to it is positioned to provide a clear view of the entire diving area.

Further information on lifeguard stations can be found in Chapter 5, "Preventive Lifeguarding."

A separate **rescue boat** should be assigned to patrol the small-boat area. Further information on rescue boat operations is presented later in this chapter.

First Aid Station

Clearly identify the first aid station and have it close to the swimming area. The equipment maintained in the first aid station will depend on the management policy, the medical personnel on the staff, the level of first aid training of the lifeguards, and the response time of emergency medical services (EMS) personnel.

Counselors and Lookouts

Assign additional safety personnel whenever a large number of users are in the facility. This can be done by utilizing counselors or advanced swimmers as lookouts. These people must be instructed to use only simple assists in emergencies, such as reaching and throwing assists, or to direct a lifeguard to the trouble spot.

Classification of Swimmers and Boaters

Whenever possible, screen all users participating in any aquatic activity to determine their respective swimming skills and ability. At residential and day camps, this should be done on the first day after the health examination and before the users are allowed to participate in any aquatic activity. At open waterfront areas, such as state parks or campgrounds, have swimming areas clearly marked for various skill levels. Post a sign describing each area's skill requirements and limitations where everyone entering the area can see it. If a lifeguard has any doubts about a facility user's swimming ability, that user should be cautioned and, if possible, screened before being allowed to enter the water or to use a boat.

Contour and Terrain Chart (Map)

Waterfront shorelines and underwater contours can be changed by erosion, currents, wind, and waves. A map or chart showing the contours and physical arrangements of the facility should be available and updated as needed ***(Fig. 236).*** The chart should show water depths, drop-offs, holes, rocks, logs, tree stumps, and any other underwater obstructions. It should also indicate all construction, such as docks, rafts, diving platforms, pilings, anchors, and lifeguard stations. Make sure all lifeguards are familiar with the facility, its hazards, and its changing environment.

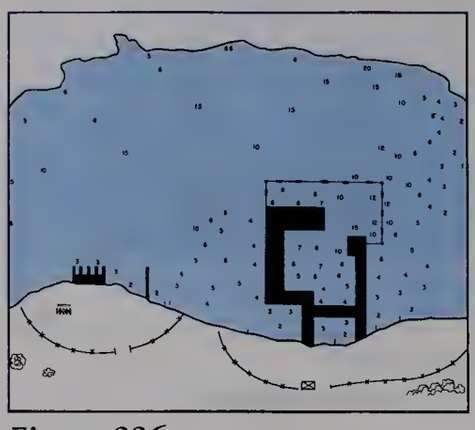

Figure 236
Contour and terrain chart

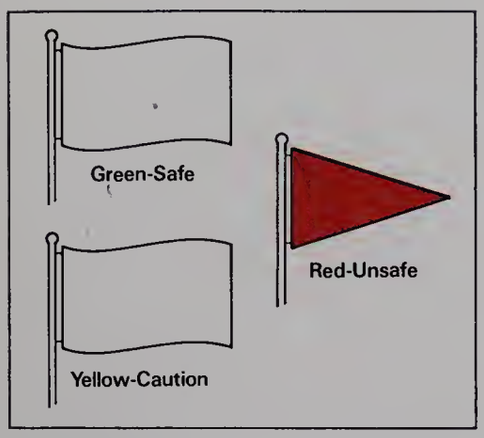

Figure 237
Signal flags

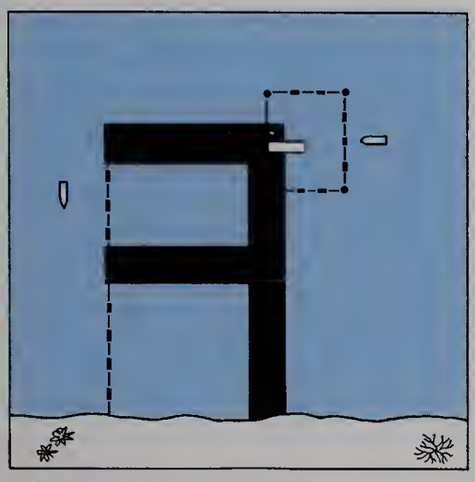

Figure 238
"F" dock formation

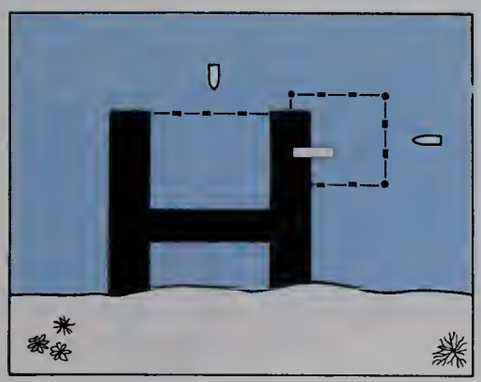

Figure 239
"H" dock formation

Boating Safety

Have the small-boat area separated from the swimming area. If possible, there should be separate docking facilities for each type of boat, such as rowboats, canoes, sailboats, and power boats. This allows for safer maneuvering of the boat while leaving and approaching the dock. A personal flotation device (PFD) is required by the U.S. Coast Guard for each person on board a small boat. Everyone—nonswimmers, swimmers, facility staff—should be required to wear a properly fitted PFD at all times while in a boat.

Signal Flags

Position signal flags so that they can be seen from anywhere in the small-boat area ***(Fig. 237).*** Post a sign that identifies the flags. Instruct users to keep a watch on the flags on shore, as well as on the flags on the rescue boat and the guard tower, for warnings of changing weather or water conditions.

Care of Equipment

All small boats should be moored or docked correctly at the end of each day. Remove canoes from the water and put them on racks or secure them for the night. Store away all equipment, such as oars, paddles, PFDs, and sails, in a well-ventilated place.

Check and service boat motors once a week during the season. Remove small outboard motors from the boats at night. Tilt up and lock large motors with the propeller out of the water. Store gasoline in a cool, dry place.

Dock Formations and Rescue Boat Locations

A waterfront area should have docks designed for the needs of that facility, especially at camps. Some camps may have younger children who have little or no swimming skills. These camps will require a different dock formation than a camp that has older users with better swimming skills. The dock formations shown in ***Figures 238–244*** are common and can be adapted to different facilities.

The locations for rescue boats will depend on such things as the number of swimmers in each area, water currents, dominant wind direction, and the type of boat used, for example, canoe, rowboat, or power boat.

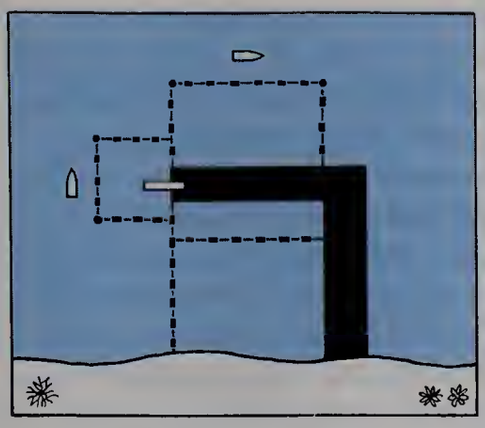

Figure 240
"L" dock formation

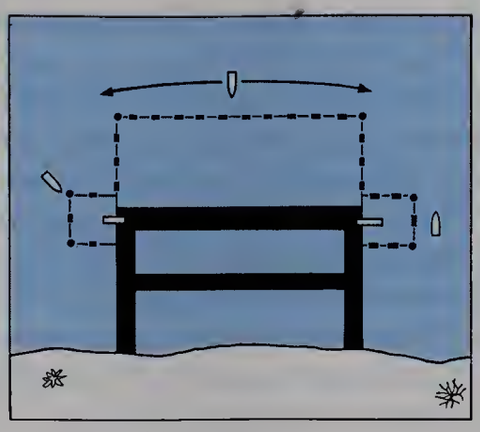

Figure 241
"A" dock formation

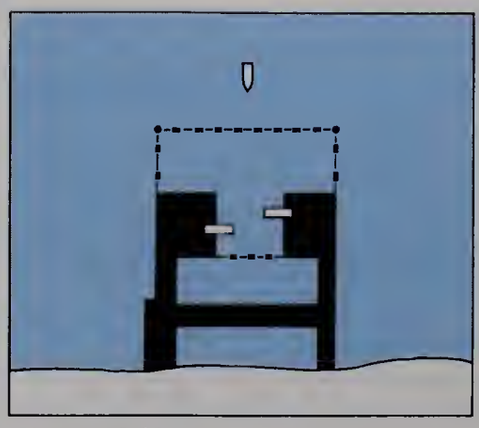

Figure 242
Modified "H" dock formation

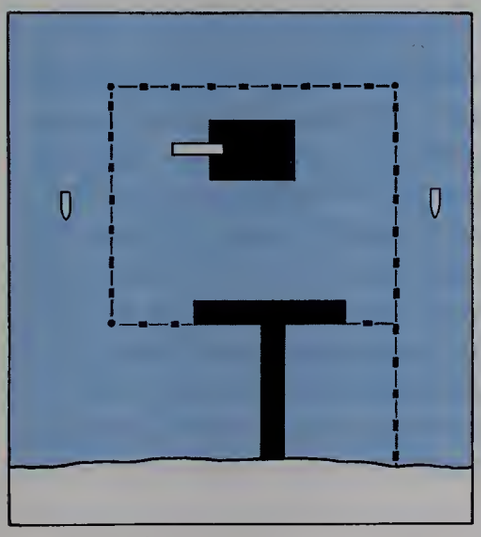

Figure 243
"T" dock formation

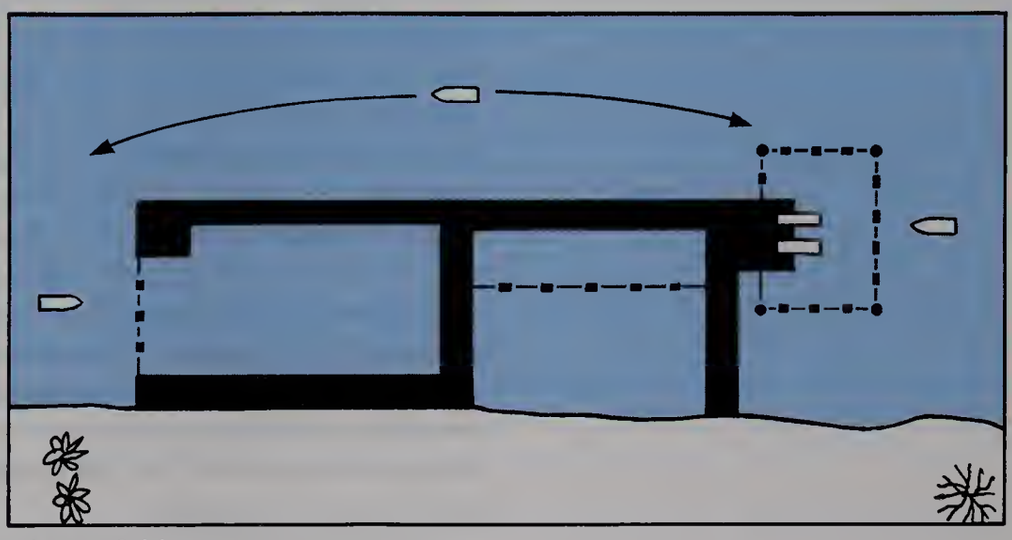

Figure 244
Large-dock formation

Rescue Boat Operations

Boats, when properly used, can aid in the supervision of a large open-water beach area. They can be invaluable in open-water rescue attempts and in search and recovery operations.

The size of the boat to be used depends on the area, water conditions, prevailing weather, and the staff employed at the facility. Generally speaking, a 14-foot boat with a flat bottom and wide beam suffices in most instances. Avoid boats made primarily of wood because they require constant attention to keep them properly maintained.

Other acceptable boats for use in lifeguarding are small motorboats from 16 to 18 feet in length or less, inflatable boats, canoes, and jet skis. These boats should be large enough to hold at least two persons comfortably and safely. However, these types of boats, with the exception of jet skis, have inherent dangers and problems. The motorboat has a churning propeller, an air cell may be punctured in the inflatable boat, and the canoe is unstable. For these reasons, this section deals primarily with the rowboat as a rescue boat. The differences in the use of motorboats, inflatable boats, and canoes will be noted where appropriate.

To guard a waterfront or a small-boat area with any kind of small boat requires practice in handling the boat being used. Hours of practice in the use of rescue boats are needed to become proficient, especially in rescuing victims from the water. Every possible emergency situation should be practiced repeatedly and regularly throughout the season.

Supervising a Beach Area Using a Boat

Shore-based supervision of a swimming area at a beach or waterfront is very important. Only when sufficient staffing and equipment permit should an area be supervised from a boat. When the area being guarded is large, boat-based lifeguards may be necessary. Should staff or equipment be lacking, the area must be reduced to a manageable size.

Boat patrols usually require a two-person crew. One person acts as the boat operator and the other as a spotter. These guards regularly trade off responsibilities to reduce fatigue. The guards should focus their supervision on the perimeter of the area. Areas with a high concentration of swimmers should be next on the list of priorities. Encourage lone swimmers to return to shore or swim with at least one other person.

When the boat remains in one place, one guard can supervise an area that covers 40 to 50 yards from each side of the boat. Moor the boat by some quick-release method such as a slip-hitch through a ring on an anchored float. A quick yank on the line releases the boat immediately.

If the rescue boat is stable, the guard can stand to gain a better view of the area. Have the oars in place and ready for immediate use while the guard and boat are on station.

Once a guard detects an emergency situation, other guards should be alerted, and the rescue boat should enter the swimming area to attend to the situation. If the guard is alone, reaching the emergency site is slightly more complicated. The guard must row the boat while keeping an eye on the victim. This is difficult while rowing in the conventional way. To keep the victim in sight, the guard must turn his or her head after each stroke or two. An alternative used by many guards is push rowing. To push row, a person faces the bow of the rowboat while standing or crouching slightly, and pushes rather than pulls on the oars. Using this method, the guard is able to watch the victim all of the time.

If a two-person craft is moved into action, the coordination of effort is easier and more efficient. The spotter, stationed in the stern of the craft and facing forward, points to the victim. The operator, rowing with his or her back to the bow of the boat, watches the spotter. When the spotter is pointing in the direction of the operator, the operator knows he or she is on track to the victim. Minor course corrections are easily made.

Lifeguarding from a canoe demands a higher level of skill than from a rowboat. Even though a canoe has the advantage of being lighter and more maneuverable, the canoe can be easily forced off course and out of position by waves and wind. The lifeguard must possess a high degree of canoeing skill to be able to guard any swimming area with a canoe.

As with a rowboat, the canoe can be used to patrol an area or can be stationed at a particular location. The canoe has an added advantage of being light enough to be brought out of the water aboard a raft or other platform. The lifeguard then has a higher, more stable vantage point. The canoe also can be easily and quickly launched in response to an emergency. Since a canoe is less stable than a rowboat, the most stable position for the lifeguard in a canoe is kneeling while resting gently against a seat or thwart. Standing and crouching are not recommended.

One or two lifeguards can operate a canoe safely from the kneeling position only. Getting to the victim in a canoe is not complicated, since the lifeguards are facing the victim all of the time. Rowboats and canoes slide easily across most lifelines that mark the perimeter of the swimming area.

Outboard motorboats have the obvious problem of entering a swimming area that is marked with lifelines. However, there are three acceptable ways to cross the perimeter of a swimming area in an outboard motorboat: (1) the boat operator and crew lift the lifeline up and over the motorboat as it passes beneath; (2) special openings in the perimeter allow the motorboat, with its motor shaft and propeller, to pass; and (3) the motor shaft and propeller

are tilted out of the water while the boat slides across the lifeline; this is perhaps the most desirable method with an outboard motorboat.

Motorboats are normally used to patrol a perimeter or a specific area. Rarely, if ever, are they used as a stationary platform or observation point. Long-term stationary use of a motorboat requires that the motor be shut down. In an emergency the motor may not restart.

Using a Boat for Rescue

The procedures for using a boat to rescue a distressed swimmer and to rescue a drowning victim differ as follows:

- **Rescuing a distressed swimmer**—When using a **rowboat** to rescue a person in distress, row to the victim and permit the victim to grab the boat. Be careful approaching the victim to avoid hitting the victim with an oar or with the boat. Give the victim encouragement and directions.

  Most rowboats are quite stable. There is little danger in permitting a single victim to grasp the bow, stern, or side (gunwale) of the boat. Multiple victims, however, must be dealt with one at a time. Toss some sort of flotation device to each victim, then pick the victims up one at a time. If there is danger of overloading the boat, summon other boats immediately. An experienced lifeguard should be able to size up a distress situation early enough to call for appropriate assistance before reaching the victims.

  When using a **canoe** to rescue a distressed swimmer, paddle close enough to the victim to be heard clearly. Then give instructions to the victim to grab the bow of the canoe. (Never permit a victim to grab the gunwale of the canoe. A canoe can be capsized easily.) The victim then can be towed to shallow water while hanging on to the bow. A calm victim can be brought to the center of the canoe and helped into the craft.

  Be very careful when you use an **outboard motorboat** to approach a victim. The spinning propeller can cause severe injury. The following procedure is recommended:
  - Approach the victim slowly from the leeward side (side opposite the wind).
  - When the boat is within 3 boat lengths of the victim, turn off the engine.
  - Coast or paddle to the victim.
  - Bring the victim aboard before restarting the engine.

  An **inflatable boat** can be powered either by an outboard engine or manually, and it is handled exactly like a rowboat or motorboat. However, it is often difficult to get victims aboard some inflatable boats. The material itself often tends to "grab" the victim or the victim's clothing, making it difficult to slide the victim into the boat. Wetting the sides of the boat can make the rescue easier.

- **Rescuing a drowning victim**—The procedures discussed above are for approaching and contacting victims who are able to get to the rescue craft. In a drowning situation, the procedure changes. Since a drowning person is unlikely to be aware of what is happening around him or her and is usually in a state of panic (if active), you must grab the victim from the boat. Enter the water from the rescue boat only if the victim is passive and out of reach or if a second lifeguard is in the boat and can maneuver it to assist you.

  Maneuver the rescue craft close to the victim and grab the victim. Once supported with his or her face out of the water, an actively drowning victim usually will calm down quickly and can be reassured. From this point on, the rescue procedures are the same as for a distressed victim.

Equipment

Any rescue boat must be properly equipped. The following lists are suggested guides for normal circumstances. The lists differ only in the quantity of items to be carried, based on the capacity of the boat. The boat must be capable of carrying two lifeguards, the required equipment, and the rescued victims.

Equipment Lists

Rowboat	Motorboat	Canoe
Oars	Outboard motor and gas tank	Paddles
Extra Oar	Paddles or oars	Extra paddle
PFD for each crew member	PFD for each crew member	PFD for each crew member
Two extra PFDs	Three extra PFDs	One extra PFD
Line for extension	Line for extension	Line for extension
Anchor (medium to large) and line	Anchor (large) and line	Anchor (small) and line
Extra line for towing	Extra line for towing	Extra line for towing
Marker buoys (3 minimum)	Marker buoys (3 minimum)	Marker buoys (3 minimum)
Rescue buoy or tube	Rescue buoy or tube	Rescue buoy or tube
Reaching pole	Reaching pole	Reaching pole
Bailer	Bailer	Bailer
First aid kit	First aid kit	First aid kit

17 Water Parks

258 Typical Water Park

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In the last 15 years, there has been a tremendous increase in the popularity of water parks. Since 1981, the number of wave pools in the United States has more than doubled, and the number of major water parks has tripled. Each year, more than 13 million people visit these parks. Today, most major metropolitan areas have at least one water park; some cities have several. Because of the parks' unique features and large crowds, lifeguards need to be aware of general characteristics of water parks and should receive specific in-service training at the facility where they will be employed.

Typical Water Park

A typical water park includes 5 to 20 acres, has hundreds of thousands of visitors each year, and may employ hundreds of lifeguards. Daily attendance ranges from hundreds to thousands. Some parks have only a wave pool or serpentine waterslides, while others may include both of these and many more activities as well. Features at water parks include deep-water activity pools, rapids rides, winding rivers, children's wading pools, rampages, speed slides, free-fall slides, ski tows, hot tubs, spas, and freshwater lakes. Since lifeguards at a typical water park are likely to make 200 rescues or more each summer, they should be trained appropriately for the activities at their facility.

Lifeguards need to be aware of the special characteristics of water park guests. Because of the potentially large number of guests, a lifeguard working at a water park has the possibility of encountering medical problems such as heart attacks, strokes, and seizures. Because features, such as wave pools, are unique, many guests do not know their own limitations, and lifeguards will need to make more rescues. Many first-time visitors come to an aquatic park each day. Being unfamiliar with the rules and unique characteristics of the specific activities, these guests may need assistance from lifeguards.

Water park guests pay to enter the park and plan to have a good time. However, in their excitement and eagerness to explore this new environment, some may fail to take the necessary time to read signs or pay attention to the rules. In addition, families often split up to go on different activities, which results in children roaming around the park without adult supervision. These factors make it necessary for water park lifeguards to take special precautions to ensure that safety rules are followed and that incidents and injuries are prevented.

Water parks generally provide weak swimmers with the use of lifejackets without charge. While this does not lessen the need for lifeguards to be observant, it does cut down on the number of swimmers in trouble.

Because of the variety of people who visit water parks, signs should be multilingual and use international symbols where

possible. Beware of sign pollution. If there are too many signs, park users may become confused, and may not take the time to read them. An idea successfully being used at some parks is to have both simple signs and tape-recorded multilingual messages to describe the rules for each activity.

Specific Activities and Problem Areas

Wave Pools

The wave pool was invented in Germany during World War II in order to produce a controlled environment for submarine tests. A typical wave pool today is 80 to 120 feet wide, 200 or more feet long, and varies in depth from 6 or 8 feet at the deep end to only inches on the beach ***(Fig. 245).*** Most wave pools operate by a system of air blowers that alternately blow air into chambers behind the wall at the deep end. The pressure of air on the water pushes a wave out through the bottom of the chamber into the pool. Some wave pools operate by means of a mechanical paddle at the back wall, which moves and presses the water out into the pool. Other pools operate by releasing a huge torrent of water from the top of the back wall once every few minutes. This produces a large breaking wave similar to ocean surf. A typical wave operation cycle is 10 minutes on and 10 minutes off. The off-time can be increased and the wave time decreased depending on the number of swimmers and their swimming abilities. The wave off-time allows the guests to rest; it also gives the lifeguards a chance to rotate, and lets them sit down while guarding until the next wave cycle begins.

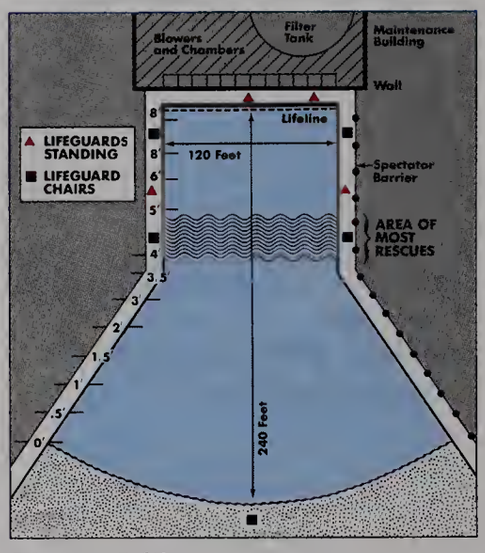


Figure 245
Typical wave pool

Safety Considerations at Wave Pools

In many parks, most of the deep-water rescues and assists take place in wave pools. Weak swimmers often venture out to the 4-to-5-foot depth zone, thinking they are safe. However, they can be knocked over by a wave, or the water's surge can act on the buoyancy of the swimmer's body to carry the swimmer into deeper water. For this reason, most wave pool rescues are concentrated in the 4-to-5-foot water depth.

Wave pool users should enter the pool from the beach only; they should not dive into the waves. Lifeguards must keep an eye on the ladders and pool railings, where they may have to assist weak swimmers from the water when the waves are produced. Guards need to keep this area clear.

Another problem seen at wave pools is "pool feet," which occurs when a person's feet are overexposed to water causing the skin to become soft. This often results in scrapes and abrasions on a swimmer's feet. Small children often get "pool feet." If this occurs, the affected swimmer should leave the pool.

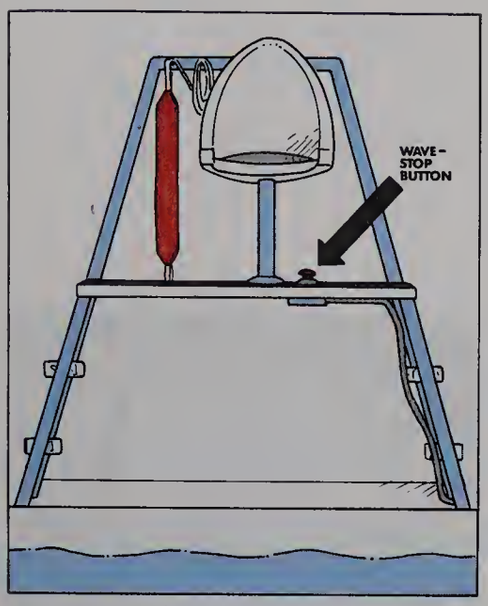


Figure 246
Lifeguard chair equipped with wave-stop button

Every wave pool should have several lifeguard chairs equipped with a wave-stop button ***(Fig. 246).*** If a swimmer is in distress, a guard can use the wave-stop button to stop the waves, which often makes it unnecessary for a guard to enter the water for a rescue. If the acting lifeguard enters the water to perform a rescue, all other guards should push their wave-stop button to make sure the waves are turned off.

The type of wave produced can be varied at some wave pools. The diamond pattern is the most turbulent. Less turbulent patterns include rolling waves which run the width of the pool. Less turbulent patterns should be used if there are a large number of unskilled swimmers in the pool.

Some wave pools allow special activities, such as surfing, at certain times. Any time surfboards or boogie boards are allowed in the pool, nonsurfing swimmers should be excluded from the pool.

Most water parks rent inner tubes or inflatable rafts for use in the wave pool. These devices enhance the participants' enjoyment and are generally safe. However, lifeguards need to be on the lookout for weak swimmers falling off their inner tubes in deep water. Also, a very large number of inner tubes in the water can make it more difficult for lifeguards to see the participants in their zones. In an extremely crowded pool, a swimmer who falls off an inner tube or inflatable raft may have trouble coming up for air because of floats blocking the surface area. Additional guards should be put on duty in very crowded situations.

The use of inflatable rafts to ride the waves also creates problems in the beach area. During wave cycles, swimmers may be knocked down by rafts and injured when they hit the cement bottom. Nonswimmers can quickly turn into distressed victims if hit by a raft.

Deep-Water Activity Pools

Some parks have deep-water pools with a variety of activities. These may include slides, diving platforms, cable swings, and hand-over-hand activities such as ropes, nets, and rings. Some parks have "lily pads"—flat, circular flotation devices tethered to the bottom of the pool. Facility users try to walk from one lily pad to another, holding on to an overhead rope.

A large number of users may need to be rescued at these activity pools, especially at locations where they enter deep water suddenly, such as under a waterslide.

Waterslides, Rapids, and Rampages

Serpentine waterslides are long, winding slides, usually made of fiberglass, but sometimes of other materials such as concrete. Swimmers ride on inner tubes or mats, or just sit or lie down on the slide. Lifeguards need to be positioned at the top of the slide where they can control each rider's dispatch. Slide riders exit into a catch pool at the bottom, which is usually 3 to 4 feet deep. Guards should be posted in the catch pool to supervise the users' exit from the water.

If inner tubes are used, only one user should ride on each tube. The rider should go down alone (no chains of riders linked together), feetfirst, sitting in the tube at all times.

Note: Some parks have introduced a two-person tube or two-person raft which allows a parent or other adult to ride with a small child.

The recommended riding position for mats varies from park to park, but feetfirst only is generally recommended.

Speed slides are very long, steep slides on which riders obtain speeds of up to 35 miles per hour. Usually they are straight, but some slides have bumps. **Free-fall slides** are similar to speed slides, but are at a steeper angle, which gives the rider a feeling of falling straight down. Guard placement at speed and free-fall slides is the same as for serpentine slides. The recommended riding position on these slides is feetfirst, lying on the back, with the legs crossed at the ankles and the arms crossed over the chest. This riding position helps reduce the risk of injury while allowing the rider to obtain high speeds.

Many of these slides end in a runout rather than in a catch pool. A runout is a long horizontal extension at the end of the slide where the riders come to a stop in less than a foot of water. The water depth in the runout always must be sufficient to stop all guests well before the end of the runout—with at least 10 or 12 feet to spare because the heaviest riders will travel much further than lighter riders.

Some parks have rides that simulate **river rapids**. Swimmers ride in inner tubes, in the same position as that recommended for waterslides. Guards should be positioned at the top, at the bottom, and at locations in between so that all parts of the ride are supervised. At some rides, it is a good idea to have guards positioned in the water at the bottom of rough rapids to help swimmers back into their inner tubes.

A **rampage** is similar to a speed slide, except that the riders sit on plastic sleds, which skim along the top of the water in a very long catch pool. The guard at the top of the slide controls dispatch by means of a hydraulic lift. Usually, two side-by-side slides are operated simultaneously. The guard at the bottom should be on the lookout for sleds flipping over and for sleds that might collide.

Safety Considerations at Waterslides, Rapids, and Rampages

Lifeguards at the shallow-water activities are more likely to encounter injuries than are guards at the deep-water pools. They should be on the lookout for swimmers who fall and hit their head on the bottom of the catch pool and on tube rapids rides. Riders on waterslides sometimes scrape their back on rough spots in the caulking between sections of the slide. If riders are permitted to slide feetfirst in a facedown position, the caulking may tear off a toenail—a painful experience. If these problems occur, close the slide and turn the water off, so that maintenance personnel can sand and recaulk the rough spots. Regular inspection can help prevent these accidents from occurring.

Hydraulic action can be a problem for riders at waterslide catch pools and on rapids rides. This is the turbulence caused by the back-flow of water, which produces a tumbling or waterfall effect. This hydraulic action may cause guests to lose their balance and fall. Guards must be on the watch for small children and overweight individuals, who may have special trouble regaining their balance after falling off an inner tube or exiting from a slide. A hydraulic force can hold a small person or weak swimmer underwater. Guards working these positions need to give the users clear instructions on how to stand up and get out of the current before they begin the activity.

Guards at the top of speed slides, free-fall slides, and rampages should not allow users to start until the previous riders have left the catch pool and the guard at the bottom has signaled to the top that it is clear for the next rider. This signal may be "thumbs up," if the guards are within each other's sight, or a mechanical signal such as a green light at the top, if the guards cannot see each other.

On serpentine slides, the riders should be dispatched 10 seconds or more apart, and even further apart following lightweight riders, such as small children, who go down the slide much more slowly. All slides are different, so they should be tested individually to determine the safest dispatch time.

Lifeguards at all locations of a waterpark should be on the lookout for anyone who shows signs of alcohol or drug use. Lifeguards should prohibit anyone exhibiting these signs from using the activity or report the person to their supervisor. Alcohol and drugs impair the park user's judgment and can result in injury or a drowning situation.

All waterslides should have rules that are strictly enforced. Following are some recommended **rules for waterslides:**

- Swimmers must exit the catch pools quickly.
- No swimsuits or shorts with metal rivets, buttons, or fasteners are allowed on the waterslides.
- You must be a certain height to ride the waterslides (necessary for some slides, and determined by the facility).
- No eyeglasses or sunglasses are permitted on the waterslides.
- Only one person at a time allowed on the waterslides.
- Feetfirst only on the waterslides.
- No lifejackets allowed on the speed slides.
- No running, standing, kneeling, rotating, tumbling, or stopping in flumes or tunnels.
- No diving from slides or flumes or into recovery pools.
- Persons under the influence of drugs or alcohol are not permitted to use the facilities.

Children's Wading Pools

Many parks have shallow pools for small children. These pools may contain activities such as slides, swings, fountains, water guns, and climbing structures. Guards at these pools need to have good public relations skills. They should be concerned that children play safely, but at the same time have fun. This may lead to confrontation with parents over rule enforcement. The children's pool guard can promote the friendly atmosphere of the park through positive interactions with the children. It is important to have uniform enforcement of requirements for use of the children's pool (for example, under 48 inches tall only or under 8 years old only).

The lost child is a very common problem at aquatic parks. The guard should keep an eye out for any lost children and contact a supervisor to help locate the parents. A fenced-in children's pool area will help alleviate the problem of lost children. Guards also must make sure that children play safely and follow the rules, especially on activities such as slides. Adult supervision should be encouraged at all children's pools.

A common problem in the children's pool occurs when children use the pool for a bathroom. If a guard spots any result of this problem, quickly remove it with a skimmer net, and notify maintenance to immediately increase chlorine levels.

Winding Rivers

Winding rivers are 3 to 4 feet in depth and travel in a large circular path through the park. Water pumps maintain a steady current of water so that users may float along slowly on inner tubes. This ride usually has a low incidence of injury. However, crowd control is an important function for guards on a winding river. Riders must not be allowed to climb out of the river and jump or dive back into it. They must not walk against the current or be allowed to stack up inner tubes, because this blocks the vision of the lifeguards.

Lifeguards may be stationed at sitting or walking positions. No part of the river should be out of sight of a lifeguard at any time. It is important always to ensure that the riders on all areas of the river are supervised.

Ski Tows

Ski tows are growing in popularity. The ski tow is a mechanical device that pulls riders around a large pool or lake on water skis or a knee board. People riding ski tows should be provided with protective equipment, such as helmets, lifejackets, and knee pads.

Water Park Lifeguarding

Lifeguards should be positioned so they are able to respond to an emergency within 20 seconds or less. Research shows that drownings can occur in as few as 20 seconds.

At all times, a head lifeguard should be assigned to each deep-water pool, and one or two head lifeguards should be assigned to supervise all shallow-water activities. The head guard at the wave pool supervises the other guards there, starts their rotations, and assigns breaks. The same guards may rotate between deep-water and shallow-water positions for variety or for staffing convenience.

Staffing

The positioning of wave pool guards varies depending on the size of the pool and the number of swimmers. Two guards are the minimum required, but 2 are sufficient only if the number of swimmers is very small and a head lifeguard is on deck who can assist in case of an emergency. Medium staffing for a large pool is 6 guards. Heavy staffing is 10 guards. Examples of wave pool staffing are shown in ***Figures 247, 248, and 249.*** Additional guards should be added if the head guard thinks they are necessary or if the other guards indicate they are having difficulty covering their areas. In wave pools specially designed with underwater windows, 1 or 2 guards can watch for distressed or near-drowning victims from behind the window. These guards can halt a wave cycle with a wave-stop control button and alert by radio the above-water lifeguard in the chair to problems in his or her zone.

A head lifeguard for shallow-water activities will supervise 1 or 2 crews of 10 to 15 lifeguards. A sample rotation might be: top of speed slide, bottom of speed slide, winding river position #3, winding river position #4, top of serpentine slides, bottom of serpentine slides, rapids pool #4, bottom of rapids, winding river position #5, back to head lifeguard. To speed rotations and make the lifeguards' jobs more pleasant, rotations should take into ccnsideration the geographical locations of the positions as well as whether they are sitting or standing positions. Rotations should be started every 20 minutes, and 30-minute breaks should be given every 3 hours. Regardless of assignment, all lifeguards should be certified in American Red Cross Basic Lifeguarding or American Red Cross Lifeguard Training and receive a thorough facility orientation to familiarize them with the specific safety considerations of their water park. This will ensure that a qualified person is available to supervise all swimmers whether they are in deep or shallow water.

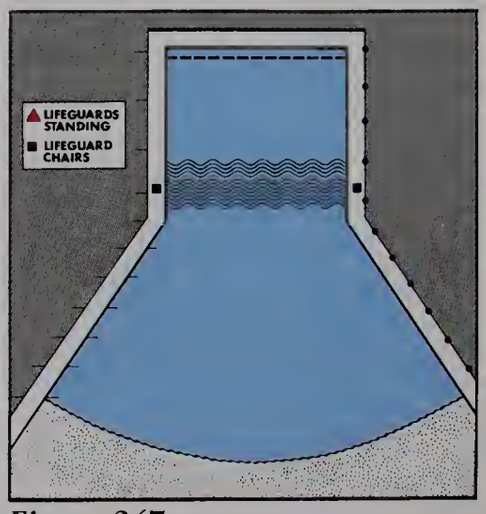


Figure 247
Minimum staffing

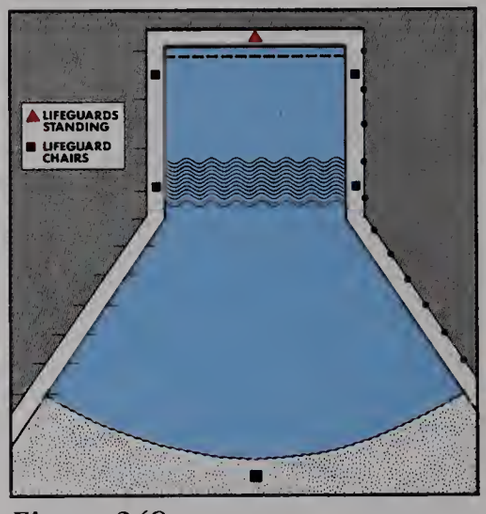


Figure 248
Medium staffing

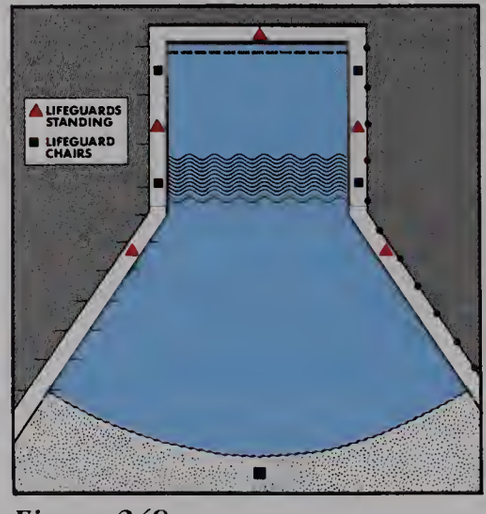


Figure 249
Heavy staffing

Physical and Psychological Effects of Lifeguarding

To help protect lifeguards from physical and emotional stress, exhaustion, or diminishing awareness, lifeguard crews should be switched after a period of time (days or weeks) at one work location. For example, all wave pool guards switch with activity pool guards, and all shallow-water-rotation-A guards switch with the shallow-water-rotation-B guards.

Lifeguards should know how to protect themselves from the sun. They should be encouraged to wear sun block and ultraviolet protective sunglasses. In addition, all lifeguard stations should be equipped with canopies or umbrellas.

Dehydration is another important consideration, because guards often work 6 to 8 hours in temperatures over 90°F. Drinking water must be provided regularly for lifeguards at their positions. An efficient way to do this is to require the guards to keep a plastic cup with them at all times, and send a small cooler of ice water around with every rotation.

Lifeguards should warn park users about the dangers of the sun and heat. Information on how to protect yourself from the sun and heat should be given on signs and in the printed materials users receive when they enter the park.

Equipment

Because of the high number of rescues made by water park lifeguards, it is essential that all guards at deep-water activities hold rescue tubes at all times while on duty, and that they never attempt body-contact rescues. Reaching poles also are convenient for use on panicky victims who may be near the side of the pool.

Communication is essential to the safe operation of a deep-water pool. Whistles are another vital piece of equipment for all guards. Other communication devices may be used, such as telephones, airhorns, flags, walkie-talkies, or electrical green light/red light systems.

Keep a backboard at each activity in the park in an easily accessible location. A first aid kit is essential. A kit stocked with standard first aid items may be sufficient, but additional items may be needed depending on the kinds of injuries that occur at specific activities.

Maintenance

Each morning before the park opens, fill out a safety checklist on all activities. These checks should include test rides of all activities. Correct any unsafe conditions before the activity opens. If any maintenance problems occur throughout the day, close the activity until proper repairs can be made.

Maintain proper chemical levels and filtration continuously and check them frequently.

Bad Weather

Park supervisors must be on the watch for heavy rain and thunderstorms. Someone at the top of a slide tower with a telephone or walkie-talkie has a good vantage point to track approaching storms. If someone sights lightning, close all activities. Since it takes several minutes or more to clear riders from slides, winding rivers, rampages, and rapids, close these activities well before the arrival of a thunderstorm. If there is rain but no lightning, clear the pools if the rain prevents the lifeguards from seeing beneath the water.

Emergency Responses

In case of an emergency, all lifeguards should be prepared to respond as follows:

- **Recognizing the emergency**—When a lifeguard spots a park user with an injury or illness, or in a distress or drowning situation, the guard should immediately blow one long, loud whistle blast and then react according to his or her training.
- **Stopping the waves or slide dispatch**—At a wave pool, the waves should be turned off by all guards around the pool. At a slide, rampage, or rapids, the guard at the top should not release any more riders on the activity. The guard at the bottom can notify the top guard of an emergency by combining the whistle signal with hands crossed over the head. (For a minor situation, this hand signal can be combined with 2 short whistle blasts to get the attention of the guard at the top.)
- **Entrance of the guard**—Once the signal has been given to stop the waves or the release of riders, the guard enters the water if necessary to rescue or assist the victim.
- **Actions of the other guards**—At a deep-water activity, all guards stand, and the guard to the left of the rescuing guard covers that guard's area and, if necessary, helps with the rescue. A lifeguard who is nearby on a break may become a backup and take over the position of the rescuing lifeguard. If more than 2 guards enter the water, the remaining guards clear all swimmers from the activity and keep it closed until full staffing is restored. In a single-guard activity, the guard's area is covered by a designated person who is part of the facility's emergency action plan.
- **Activation of the park communication system**—The guard nearest the rescuing guard activates the signal to inform management and first aid personnel of the rescue or assist, using telephone, walkie-talkie, airhorn, or other signaling device.
- **Crowd control or assistance**—The head guard, or any other available guard, helps the first guard control the crowd.

- **Arrival of supervisory and medical personnel**—The first aid personnel and head guard or supervisor arrive on the scene. Most aquatic parks employ emergency medical technicians, paramedics, or nurses because of the high potential for illness and injury.
- **Transfer of the victim to medical personnel**—The medical personnel take over from the first lifeguard and, if necessary, bring the victim to the first aid room for further examination. In very serious situations, medical personnel summon an ambulance.
- **Incident report**—The supervisory personnel organize crowd control and then fill out an incident report. (See Appendix C for a sample water park incident report. This report form should have a diagram of the pool or activity on the back so that the location of the incident can be marked for future study.) The lifeguard making the rescue also completes an incident report as soon as time permits.

Appendixes

270 Appendix A: Chains of Command

277 Appendix B: Sample Job Description

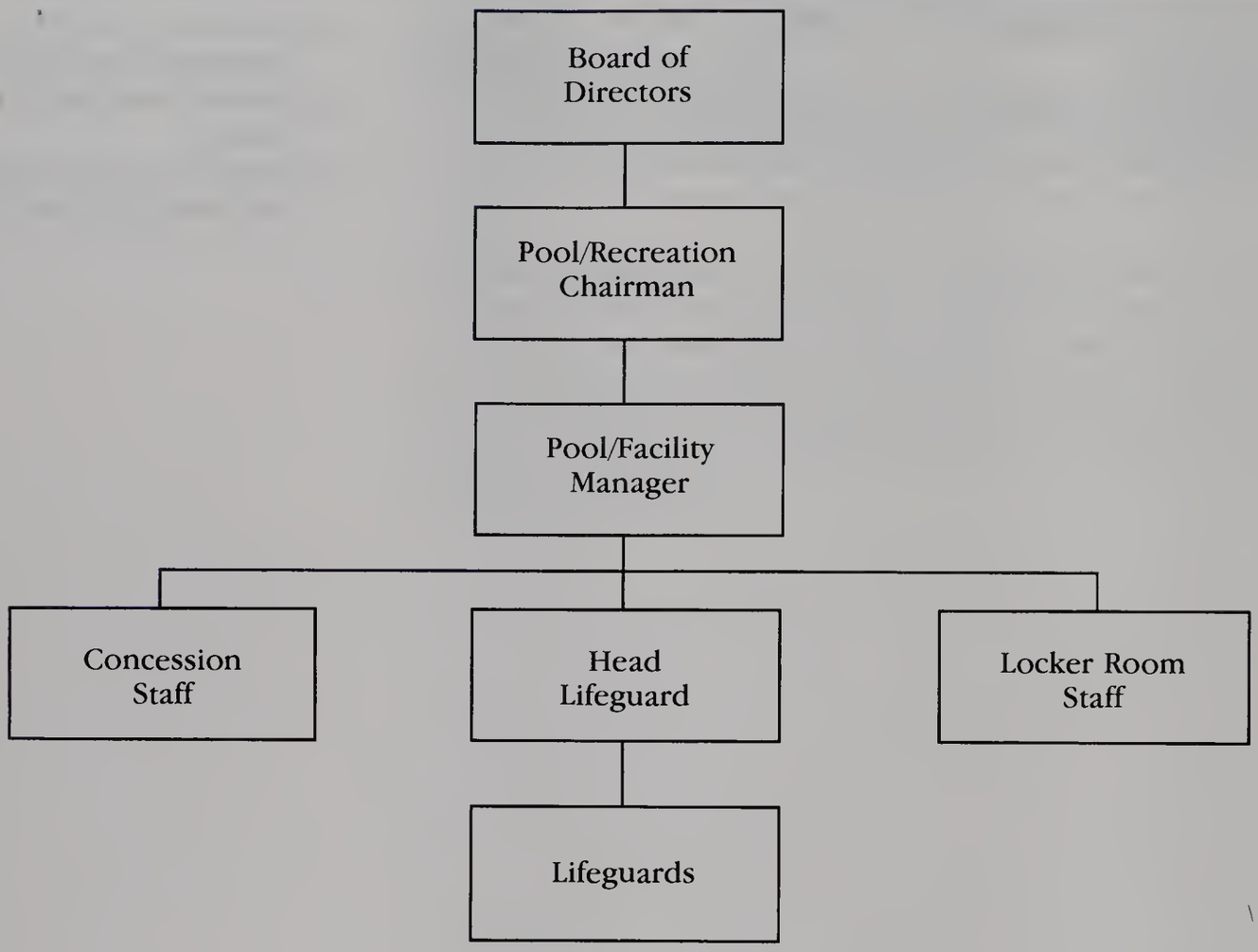
278 Appendix C: Sample Incident and Injury Reports

290 Appendix D: Related Aquatic Agencies

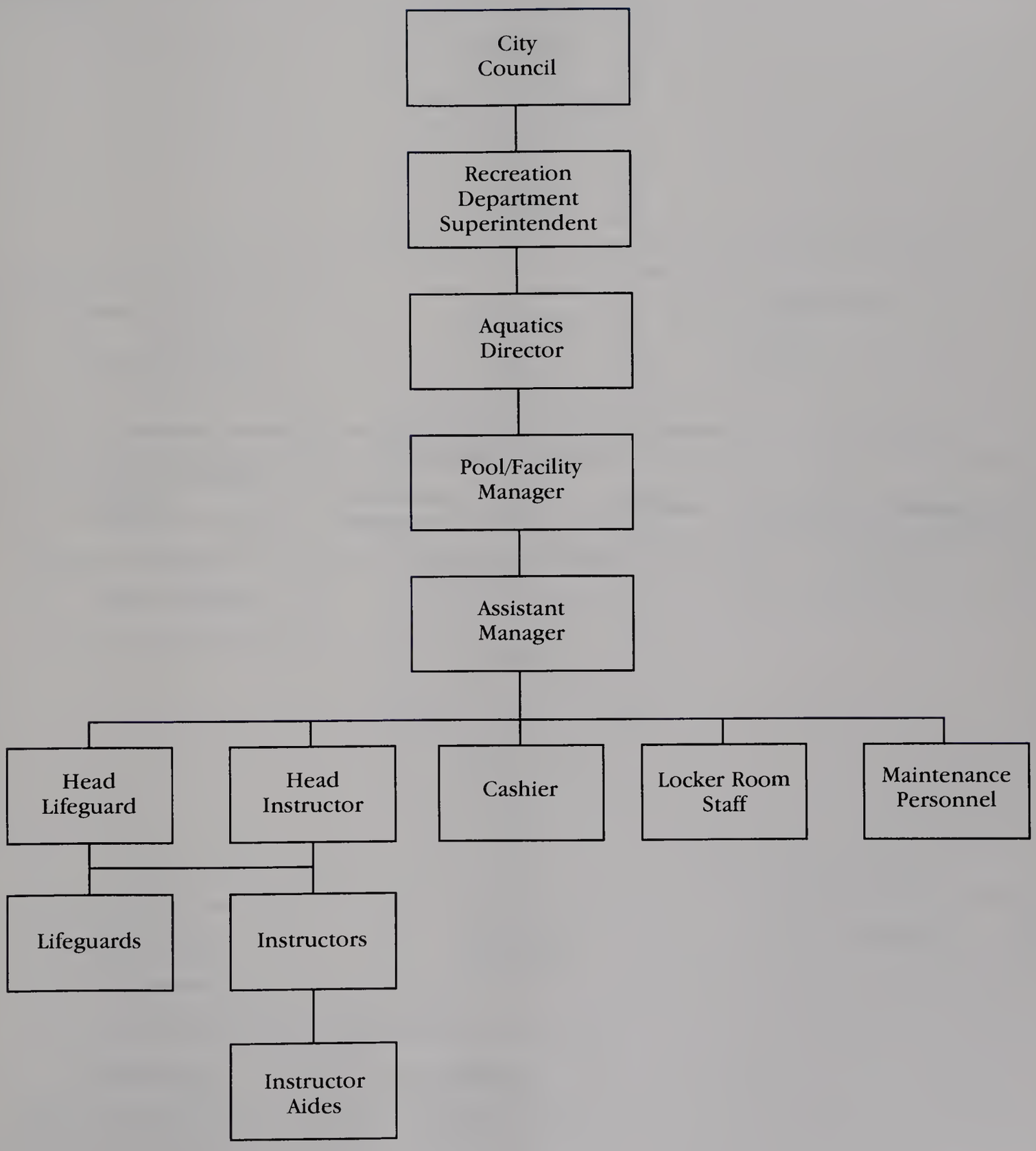
292 Appendix E: Rescue Breathing for an Adult; 293 Rescue Breathing for a Child

294 Appendix F: Instructions for Emergency Phone Calls

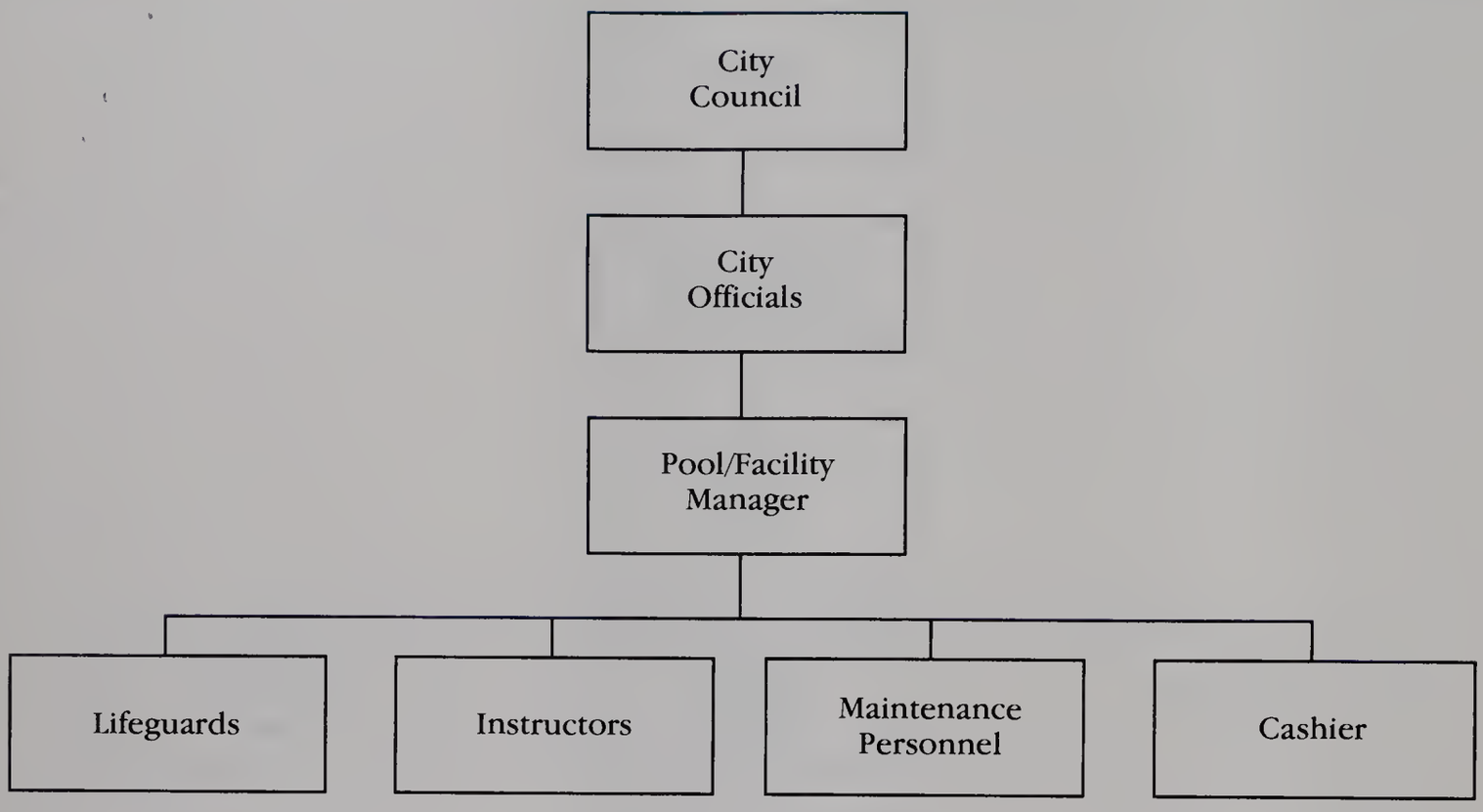
Swim Club Chain of Command
(Sample)



Large-City Aquatic Facility Chain of Command
(Sample)

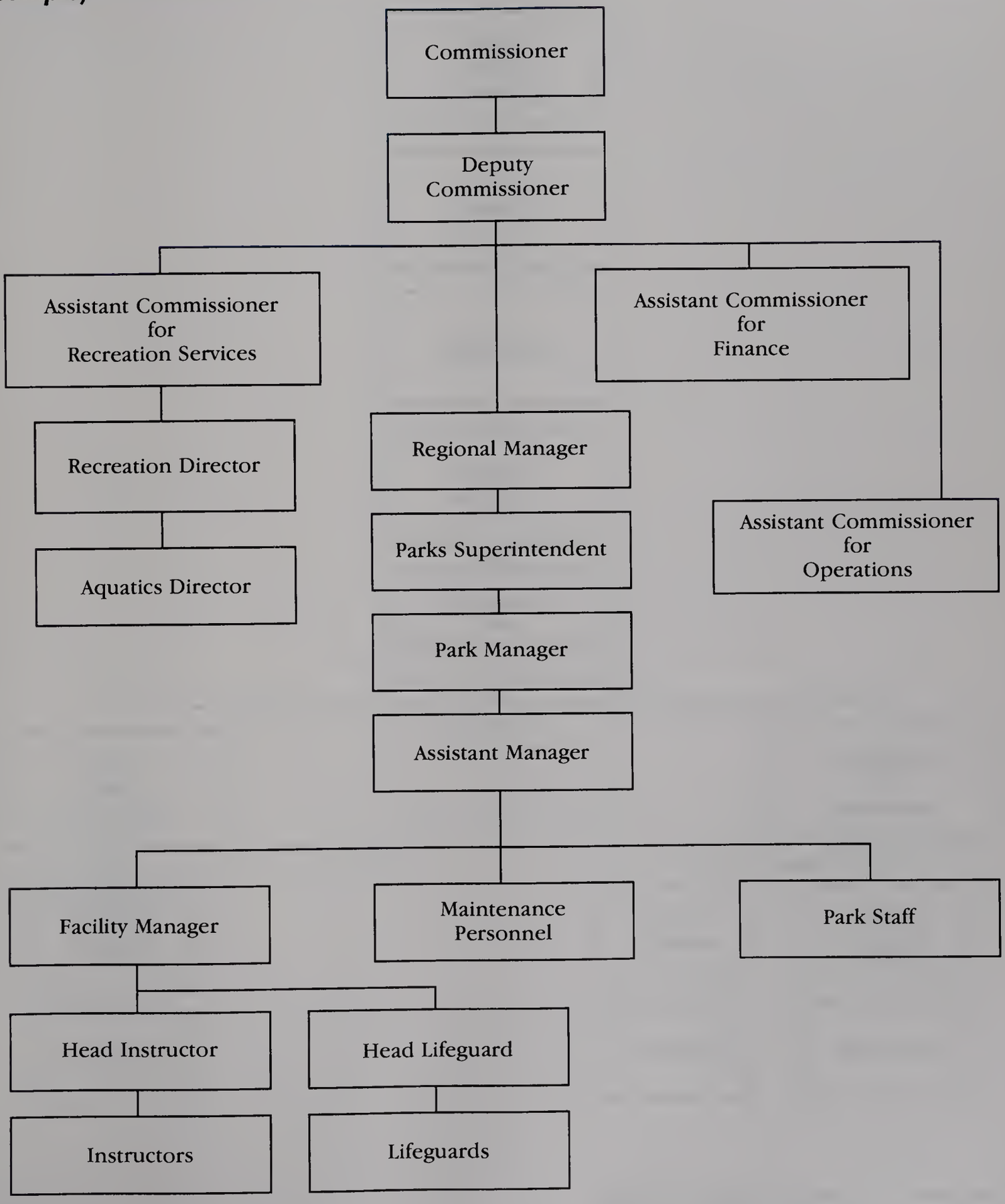


Small-Town Aquatic Facility Chain of Command
(Sample)

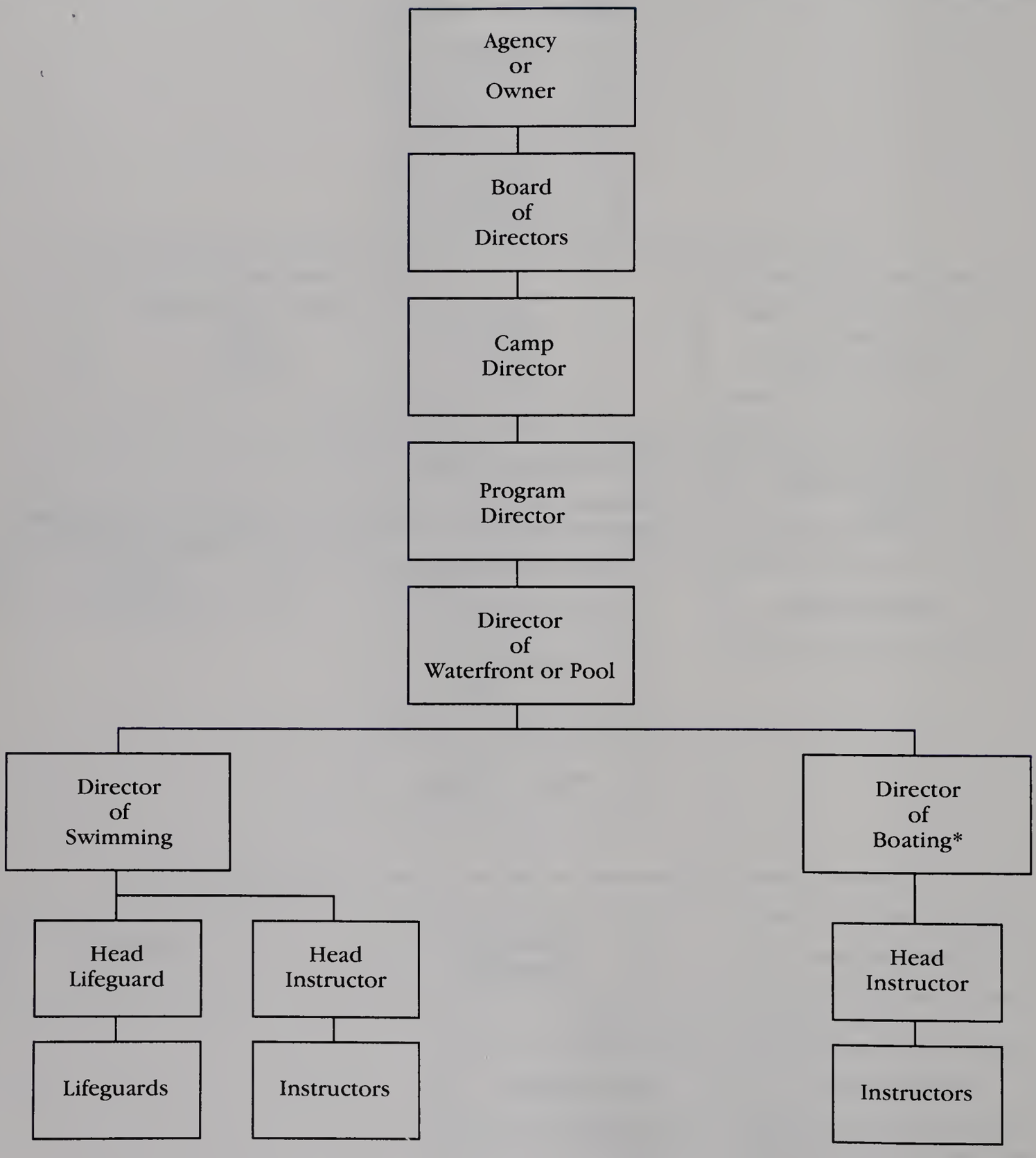


County or State Recreation Department Chain of Command

(Sample)

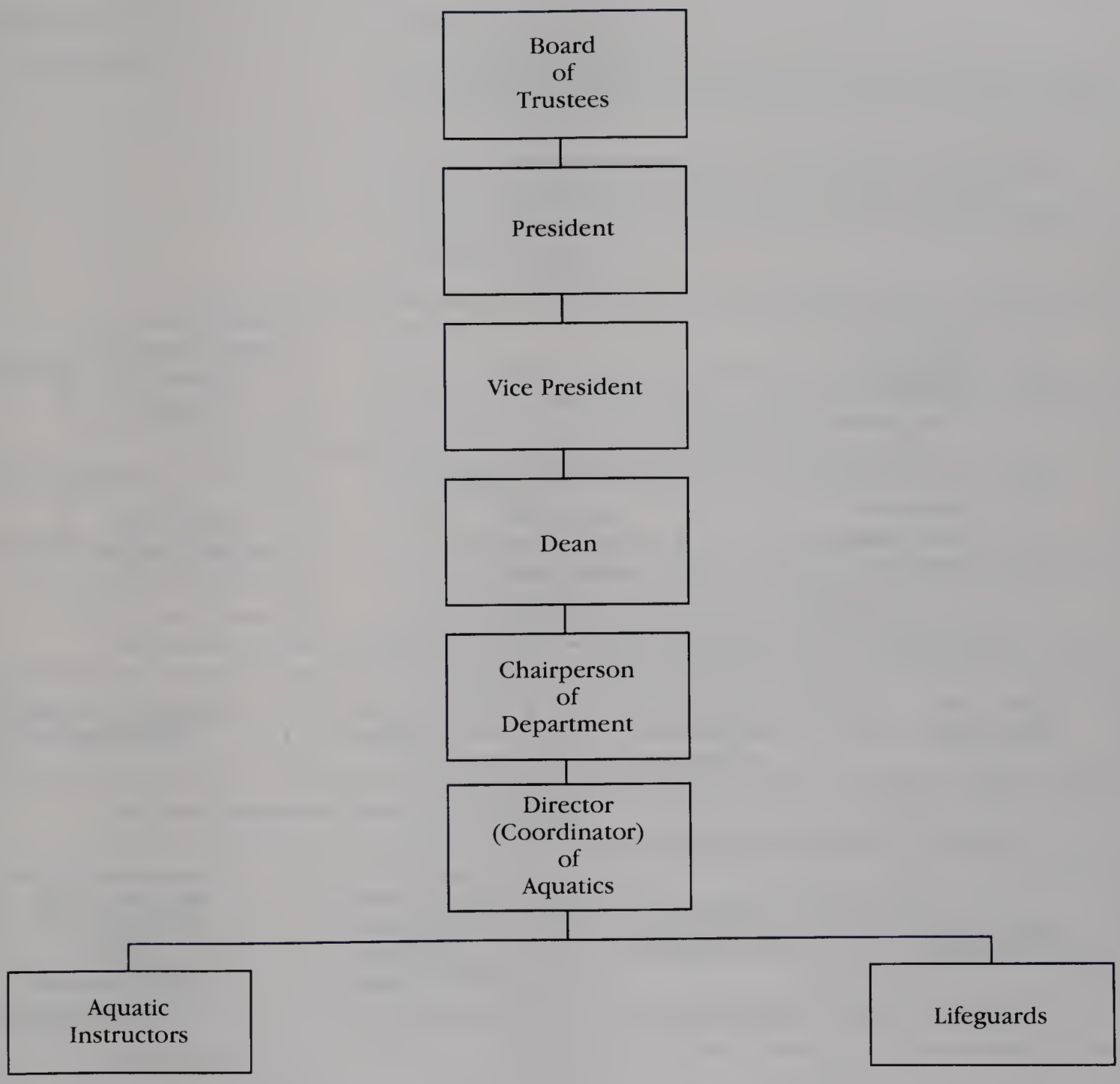


Camp (Agency or Private) Chain of Command
(Sample)



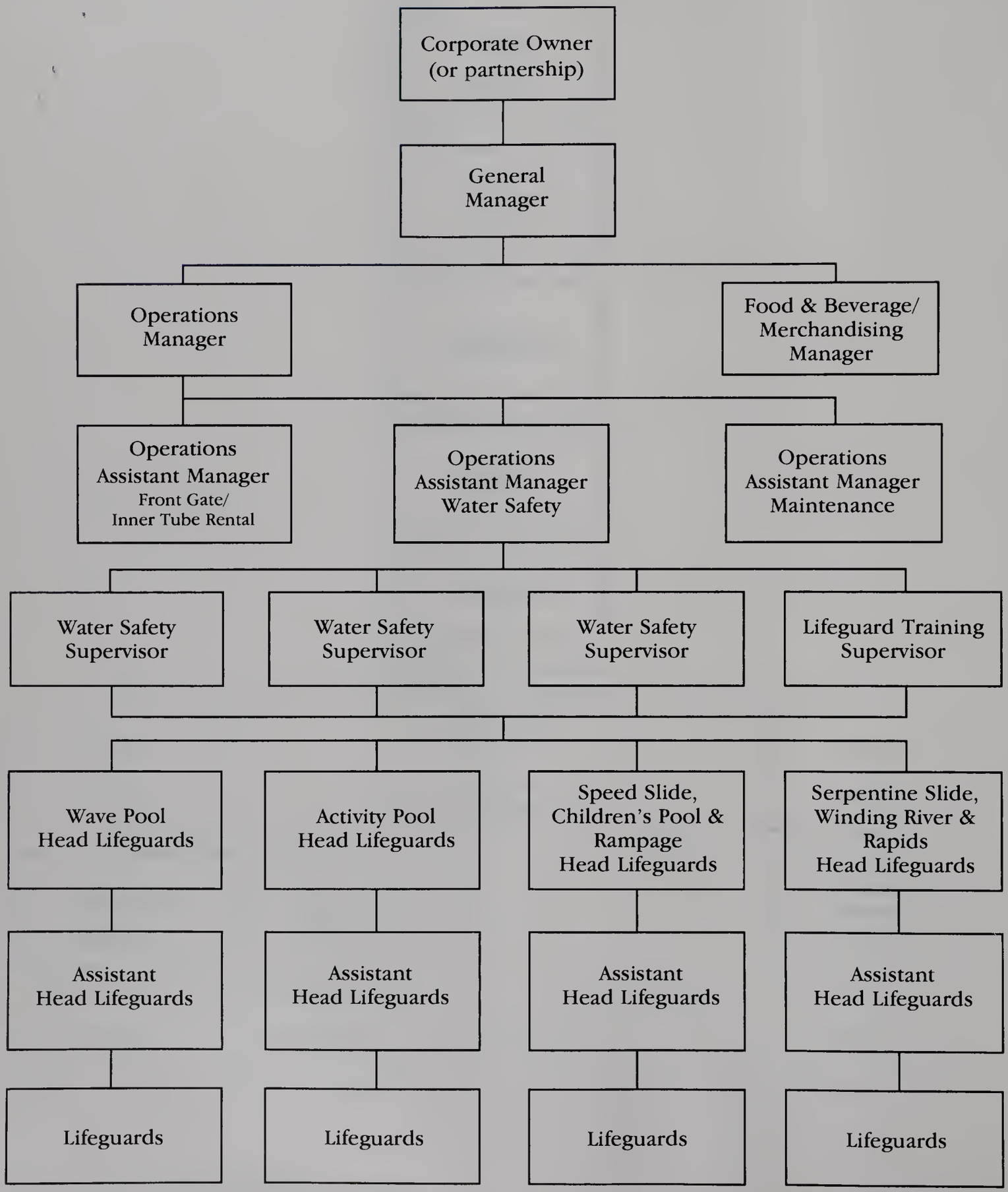
* Responsible for obtaining lifeguard coverage

College or University Aquatic Facility Chain of Command
(Sample)



Water Park Chain of Command

(Sample)



Job Description for a Lifeguard
(Sample)

Job Title: Lifeguard (entry-level)

Qualifications:

Education—College student or high school senior level is preferred, but must have completed the 10th grade and be at least 15 years of age.

Must have a current American Red Cross Basic Lifeguarding or American Red Cross Lifeguard Training certificate and American Red Cross Standard First Aid and American Red Cross Adult CPR certificate.

Must successfully complete the facility's lifeguard test (written and practical.)

Experience: Previous experience in some phase of aquatics operations is desirable. A lifeguard must have considerable ability as a swimmer plus skill in rescue work, resuscitation, and first aid.

Knowledge: Knowledge of principles and practices of facility rules, policies, and procedures.

Primary Duties:

- Observe and enforce all rules and regulations.
- Prevent injury and minimize or eliminate hazardous situations.
- Respond quickly to all emergency situations.
- Administer emergency first aid to victims of an injury.
- Communicate with other lifeguards and aquatic staff the need for additional assistance and/or equipment.

Secondary Duties:

- Attend all in-service training programs and be aware of all facility programs and scheduling.
- Educate the facility users and inform them of the purpose of and need for rules.
- Assist parents or family members in locating a missing child or relative.
- Complete required records and reports on time.
- Carry out all additional duties as assigned by supervisory staff members.

Responsible To: Lifeguard Supervisor, or Pool Manager, or Aquatic Director

First Aid Treatment Records
(Sample)

Name of Facility _____

Manager _____

Date/Time	Name and Address of Person Treated	Type of Injury	Treatment/ Disposition	Lifeguard's Initials

Injury Log
(Sample)

Date	Hour	Name and Address	Age	Nature or Extent of Inury	Where and What Happened	Action Taken

Report of Injury-Producing Incident
(Sample)

Name of injured party _____

Address _____

Where did incident occur? (Be specific) _____

When did incident occur? Date and time: _____

If incident occurred in a class, check one.

____ General program ____ Professional program

____ Intramural activity ____ Other; please indicate:

_____

In what activity was person participating when incident occurred?

_____

_____

What piece of equipment, if any, was involved in incident? _____

Number of lifeguards on duty _____

Was there supervision at time of incident? Yes ____ No ____ By whom? _____

What part of body was injured? _____

What type of injury (e.g., bruise, laceration) was sustained? _____

_____

Physician's diagnosis _____

_____

Exactly how did incident occur? (Describe what happened) _____

_____

_____

_____

_____

_____

What was cause of incident? Check one.

____ Participating in unsafe act ____ Lack of knowlege or skill

____ Defective facilities or equipment ____ Personal factors (overaggressive, nervous, shy)

Other; please indicate: _____

Was first aid administered? ____ No ____ Yes By whom? _____

_____

Was injured party referred to medical assistance? ____ Yes ____ No

Did injured party need help in getting to medical assistance? ____ Yes ____ No

Name and telephone number of family contact

_____

Name of person (or persons) who accompanied injured person to medical assistance

_____

_____

_____

_____

Names, addresses, and telephone numbers of witnesses

1. _____

2. _____

3. _____

Name of person filling out report _____

Signature _____

Date report was filled out _____

Report of Injury
(Sample)

Date _____ Fatality ____ Personal injury ____

_____

Personal data—injured party

Name _____ Age ____ Sex ____

Address (street and number) _____

City, town _____ State _____ Zip code _____

Country _____ Home telephone _____ Work telephone _____

Name and telephone number of family contact _____

Activity in which the injured party was involved at the time of the incident _____

_____

Type of injury

____ Fracture
____ Burn
____ Sprain/abrasion
____ Dislocation
____ Near drowning
____ Drowning
____ Other (specify)

Area of injury

____ Head
____ Neck
____ Arm
____ Hand
____ Unknown
____ Trunk
____ Leg
____ Foot
____ Multiple

_____

Incident Data

Date and day of week _____ Time of day _____

Name of facility _____ Address of facility _____

Number of lifeguards on duty _____

Weather conditions: Air temperature _____ Clear _____ Cloudy _____ Fair _____ Poor _____

Wind conditions: Wind direction ____ Light winds ____ Moderate winds ____ Strong winds ____

Water conditions: Calm _____ Choppy _____ Small waves _____ Whitecaps _____

Water temperature _____ Depth of water at point of incident _____

Report for All Injury and Near Drowning/ Drowning Cases
(Sample)

Give the following information as accurately as possible.

1. Names, titles, employment histories, and locations of all facility employees involved.
2. Dates, types, and amounts of training and experience in lifeguarding and first aid techniques of all employees involved.
3. Times and location of injury or submersion.
4. Names, addresses, and ages of all persons involved in injury or submersion.
5. Description of water and weather temperatures and conditions at time of incident.
6. Number of patrons at beach or pool at time of incident.
7. How did involved facility employees first become aware of incident? (Include **exact** time.)
8. For rescues only:
   a. How far did rescuers have to swim to victim?
   b. How far to safety did rescuer have to swim with victim?
   c. What assistance was given to rescuer?
   d. Were there any impediments to rescue? Describe them.
   e. How much time elapsed before the rescue?
   f. How long did rescue take?
   g. Specify any equipment that was used in rescue.
   h. What steps, if any, were taken to revive victim? Describe in detail.
   i. Was rescue breathing required?
   j. Give names of rescuers and duration of rescue efforts.
9. Was injured person identified? By whom?
10. What was victim doing at time of incident?
11. Was victim a nonswimmer? Poor swimmer? Good swimmer?
12. Did victim disregard any pool or facility rules or specific instructions by guard?

13. Were police, EMS personnel, rescue squad, or doctor called? By whom? How long did it take them to respond? What action did they take? Was first aid given? Describe. By whom? Did doctor arrive? Did doctor make any statements about victim's condition? If so, what? Was victim removed from premises? By whom? Under what conditions?
14. Give additional pertinent details (including sketch of facility, if pertinent).

Report of Incident
(Sample)

Check one: Rescue ☐ First aid ☐ Other (specify) ☐

_____

Name of victim _____

Address _____

Age _____ Sex _____ Date of incident _____ Time _____

Name and telephone number of family contact _____

Site of occurrence: Beach _____ Pool _____ Waterfront _____ Swimming area _____

Type of activity in which victim was involved at time of incident _____

_____

Witnesses: Names, addresses, and telephone numbers

1. _____

2. _____

3. _____

Cause of incident _____

_____

Condition of water: Rough _____ Mild _____ Calm _____

Equipment used in rescue _____

Description of incident and treatment (print or write clearly)

_____

_____

Number of lifeguards on duty _____

Name of lifeguard who made rescue _____

Lifeguard's signature _____

Other guards on duty _____

Report of Injury
(Sample)

Date of injury _____ Time of injury _____

Name of injured person _____ Age _____ Sex _____

Address _____ Telephone number _____

Name and telephone number of family contact _____

Location of incident _____

Type of activity in which victim was involved at the time of the incident _____

Number of other persons involved _____ Names _____

_____

Water conditions _____ Weather conditions _____

Number of patrons at facility at time of incident _____

_____

Swimming ability of injured person _____

Did victim disregard rules or orders of lifeguard? Yes _____ No _____

Explain: _____

_____

Number of lifeguards on duty _____

Was rescue breathing used? Yes _____ No _____ If yes, for how long? _____

Was a device for resuscitation used? Yes _____ No _____ If yes, for how long? _____

Was cardiopulmonary resuscitation (CPR) used? Yes _____ No _____ If yes, for how long? _____

Where was injured person taken after incident? _____

Name of doctor attending victim _____

Were police or EMS called? Yes _____ No _____ Time called _____

Time of arrival _____ Action taken _____

Name of lifeguard making rescue _____ Position _____

Number of seasons (years/months) employed as lifeguard _____

Location of assignment (station) _____

List of witnesses (names, addresses, and telephone numbers) _____

_____

_____

General comments of staff _____

_____

_____

Sketch the incident area, showing unusual conditions and positions of personnel.

Report of Water Park Incident
(Sample)

Date _____ Time _____

Name of lifeguard making rescue _____

Position of lifeguard making rescue _____

Number of lifeguards on duty _____

Location:

☐ Activity pool
☐ Serpentine slides
☐ Children's pool
☐ Wave pool—Waves on? Yes No
☐ Winding river
☐ Speed slide

(Please mark victim's location on the activity map on the back of this sheet)

Reason for Rescue:

☐ Tired swimmer
☐ Nonswimmer
☐ Overcome by waves
☐ Overestimated swimming ability
☐ Illness (describe):
☐ Entered deep water unexpectedly
☐ Swallowed water
☐ Fell off inner tube
☐ Lost balance
☐ Panicked
☐ Injury (describe):

_____ _____

_____ _____

_____ _____

Type of activity in which victim was involved at the time of the incident _____

_____

Result:

- ☐ Victim released
- ☐ Victim released to parent
- ☐ Victim examined by medical personnel
- ☐ Victim taken to first aid station
- ☐ Victim taken to hospital
- ☐ Victim refused first aid treatment

Name and telephone number of family contact _____

Signature of victim _____

Signature of parent _____

Signature of lifeguard making rescue _____

Signature of head lifeguard or supervisor _____

Appendix D: Related Aquatic Agencies

American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD)
1900 Association Drive
Reston, Virginia 22091
(703) 476-3400

American Camping Association
Bradford Woods
5000 State Road 67 N
Martinsville, Indiana 46151-7902
(317) 342-8456

American Canoe Association
8580 Cinderbed Road, Suite 1900
P.O. Box 1190
Newington, Virginia 22122-1190
(703) 550-7523

American Red Cross
Health and Safety
17th and D Streets, N.W.
Washington, DC 20006
(202) 737-8300

American Swimming Coaches Association
1 Hall of Fame Drive
Fort Lauderdale, Florida 33316
(305) 462-6267

Boy Scouts of America
1325 Walnut Hill Lane
Irving, Texas 75038-3096
(214) 580-2000

Council for National Cooperation in Aquatics (CNCA)
901 West New York Street
Indianapolis, Indiana 46202
(317) 638-4238

International Swimming Hall of Fame
One Hall of Fame Drive
Fort Lauderdale, Florida 33316
(305) 462-6536

National Collegiate Athletic Association
6201 College Boulevard
Overland Park, Kansas 66211-2422
(913) 339-1906

National Federation of State High School Associations
11724 Plaza Circle
Box 20626
Kansas City, Missouri 64195
(816) 464-5400

National Recreation and Park Association (NRPA) Aquatic Section
3101 Park Central Drive
Alexandria, Virginia 22302
(703) 820-4940

National Safety Council
444 North Michigan Avenue
Chicago, Illinois 60611
(312) 527-4800

National Spa and Pool Institute (NSPI)
2111 Eisenhower Avenue
Alexandria, Virginia 22314
(703) 838-0083

National Swimming Pool Foundation
10803 Gulfdale, Suite 300
San Antonio, Texas 78216
(512) 525-1227

The Canadian Red Cross Society
1800 Alta Vista Drive
Ottawa, Ontario
Canada K1G 4J5
(613) 739-3000

Royal Life Saving Society Canada
191 Church Street
Toronto, Ontario
Canada M5B 1Y8
(416) 364-3881

United States Coast Guard (USCG)
Commandant (G-NAB)
2100 Second Street, S.W.
Washington, DC 20593-0001
(202) 267-1060

United States Coast Guard Auxiliary
3131 North Abingdon Street
Arlington, Virginia 22207
(703) 538-4466

United States Diving, Inc.
Pan American Plaza
201 South Capitol Avenue, Suite 430
Indianapolis, Indiana 46225
(317) 237-5252

United States Lifesaving Association (USLA)
425 East McFetridge Drive
Chicago, Illinois 60605
(312) 294-2332

United States Swimming, Inc.
1750 East Boulder Street
Colorado Springs, Colorado 80909
(719) 578-4578

United States Synchronized Swimming, Inc.
Pan American Plaza
201 South Capitol Avenue, Suite 510
Indianapolis, Indiana 46225
(317) 237-5700

United States Water Polo, Inc.
1750 East Boulder Street
Colorado Springs, Colorado 80909
(719) 632-5551

United States Yacht Racing Union (USYRU)
Box 209
Newport, Rhode Island 02840
(401) 849-5200

United States Power Squadron
P.O. Box 6568
Richmond, Virginia 23230
(804) 355-6588

YMCA of the U.S.A.
6083-A Oakbrook Parkway
Norcross, Georgia 30093
(404) 662-5172

YWCA of the U.S.A.
726 Broadway
New York, New York 10003
(212) 614-2700

Appendix E: Rescue Breathing for an Adult

American Red Cross First Aid:

When an Adult Stops Breathing

1 Does the Person Respond?
- Tap or gently shake victim.
- Shout, "Are you OK?"

2 Shout, "Help!"
- Call people who can phone for help.

3 Roll Person Onto Back
- Roll victim toward you by pulling slowly.

4 Open Airway
- Tilt head back and lift chin.

5 Check for Breathing
- Look, listen, and feel for breathing for 3 to 5 seconds.

6 Give 2 Full Breaths
- Keep head tilted back.
- Pinch nose shut.
- Seal your lips tight around victim's mouth.
- Give 2 full breaths for 1 to 1½ seconds each.

7 Check for Pulse at Side of Neck
- Feel for pulse for 5 to 10 seconds.

8 Phone EMS for Help
- Send someone to call an ambulance.

9 Begin Rescue Breathing
- Keep head tilted back.
- Lift chin.
- Pinch nose shut.
- Give 1 full breath every 5 seconds.
- Look, listen, and feel for breathing between breaths.

10 Recheck Pulse Every Minute
- Keep head tilted back.
- Feel for pulse for 5 to 10 seconds.
- If victim has pulse but is not breathing, continue rescue breathing. If no pulse, begin CPR.

American Red Cross

Local Emergency (EMS) Telephone Number: _____

Everyone should learn how to perfom the steps above, how to give first aid for choking, and CPR. Call your local American Red Cross chapter _____ (chapter telephone number) for information on these techniques and other first aid courses.

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Appendix E: Rescue Breathing for a Child

American Red Cross First Aid:

When a Child Stops Breathing

(Aged 1 Through 8)

1 Does Child Respand?
- Tap or gently shake child.
- Sbout, "Are you OK?"

2 Shaut, "Help!"
- Call people who can phone for help.

3 Rall Child Over Onta Back
- Roll child toward you slowly.
- Support back of head and neck as you roll child.

4 Open Airway
- Tilt head gently back and lift chin.

5 Check far Breathing
- Look, listen, and feel for breathing for 3 to 5 seconds.

6 Give 2 Slow Breaths
- Keep head tilted back.
- Pinch nose shut.
- Seal your lips tight around child's mouth.
- Give 2 slow breaths for 1 to 1½ seconds each.

7 Check far Pulse at Side af Neck
- Place fingers on Adam's apple.
- Slide fingers to side of neck.
- Feel for pulse for 5 to 10 seconds.

8 Phane EMS far Help
- Send someone to call an ambulance.

9 Begin Rescue Breathing
- Keep head tilted back.
- Lift chin.
- Give 1 slow breath every 4 seconds.
- Look, listen, and feel for breathing between breaths.

10 Recheck Pulse Every Minute
- Keep head tilted back.
- Feel for pulse for 5 to 10 seconds.
- If child has pulse but Is not breathing, continue rescue breathing. If no pulse, begin CPR.

Local Emergency (EMS) Telephone Number: _____

Everyone should learn how to perform the steps above, how to give first aid for choking, and CPR. Call your local American Red Cross chapter _____ (chapter telephone number) for information on these techniques and other first aid courses.

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Appendix F: Instructions for Emergency Phone Calls

Emergency Telephone Numbers

EMS _____ Fire _____ Police _____

Poison Control Center _____

Other Important Telephone Numbers

Doctor _____ Phone number _____

Facility manager _____ Phone number _____

Head lifeguard _____ Phone number _____

Weather Bureau phone number _____

Name and address of medical facility with 24-hour emergency cardiac care:

_____

Information for Emergency Call (Be prepared to give this information to the EMS dispatcher.)

1. Location

   Street address _____

   City or town _____

   Directions (cross streets, roads, landmarks, etc.) _____

   _____

2. Telephone number from which the call is being made
3. Caller's name
4. What happened
5. How many persons injured
6. Condition of victim(s)
7. Help (first aid) being given

Note: Do not hang up first. Let the EMS dispatcher hang up first.

American
Red Cross

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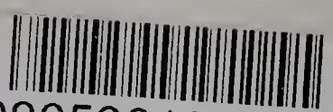
Lucy 722-6753

Tom 722-4205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